World Space Week

Austrian Space Forum

The Mars Society

Kiwispace Foundation

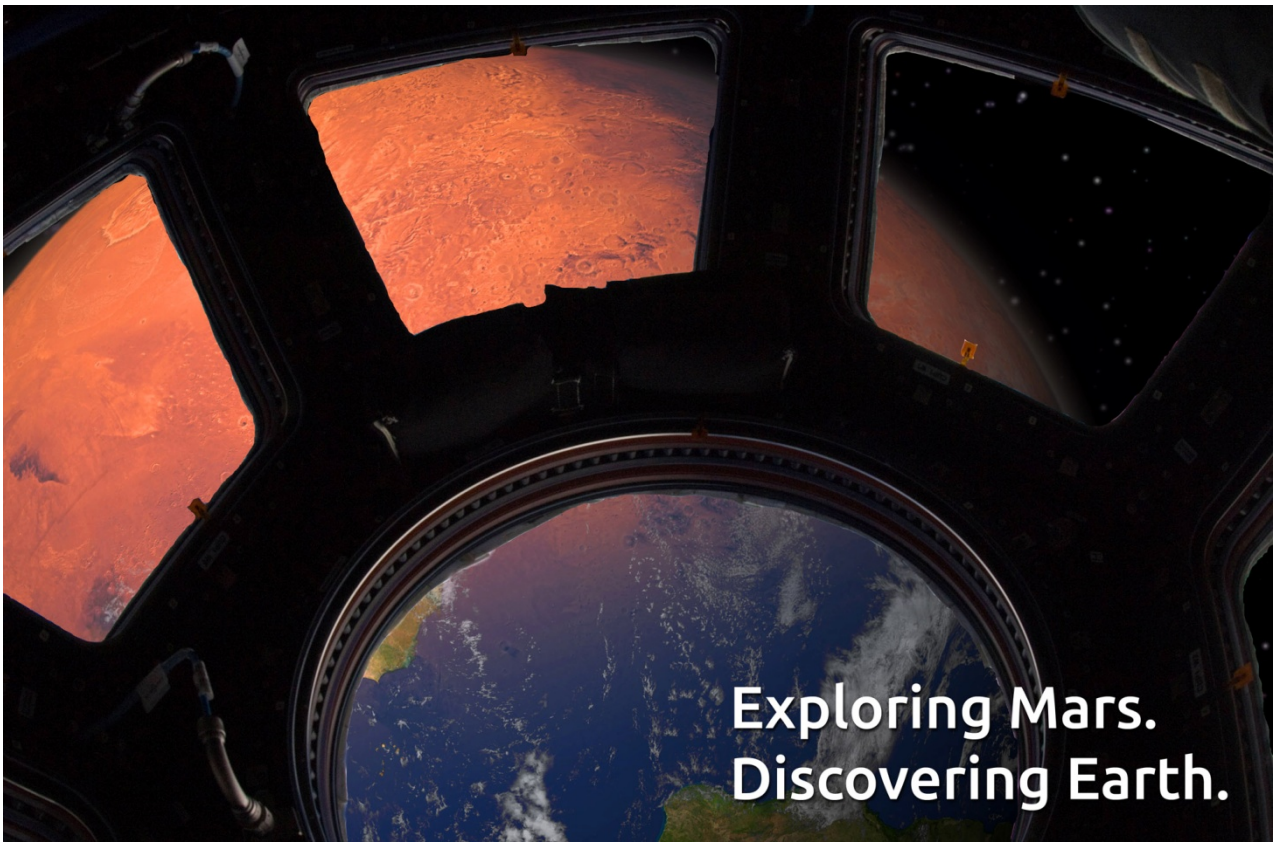
Space Generation Advisory Council

World Space Week 2013 Flagship project

Mission Report

Document title	WSW Mission Report
Tracking Number	P10_011B
Version / Date	V2.4 / 03Dez2013
Book captain	Gernot Groemer

PUBLIC

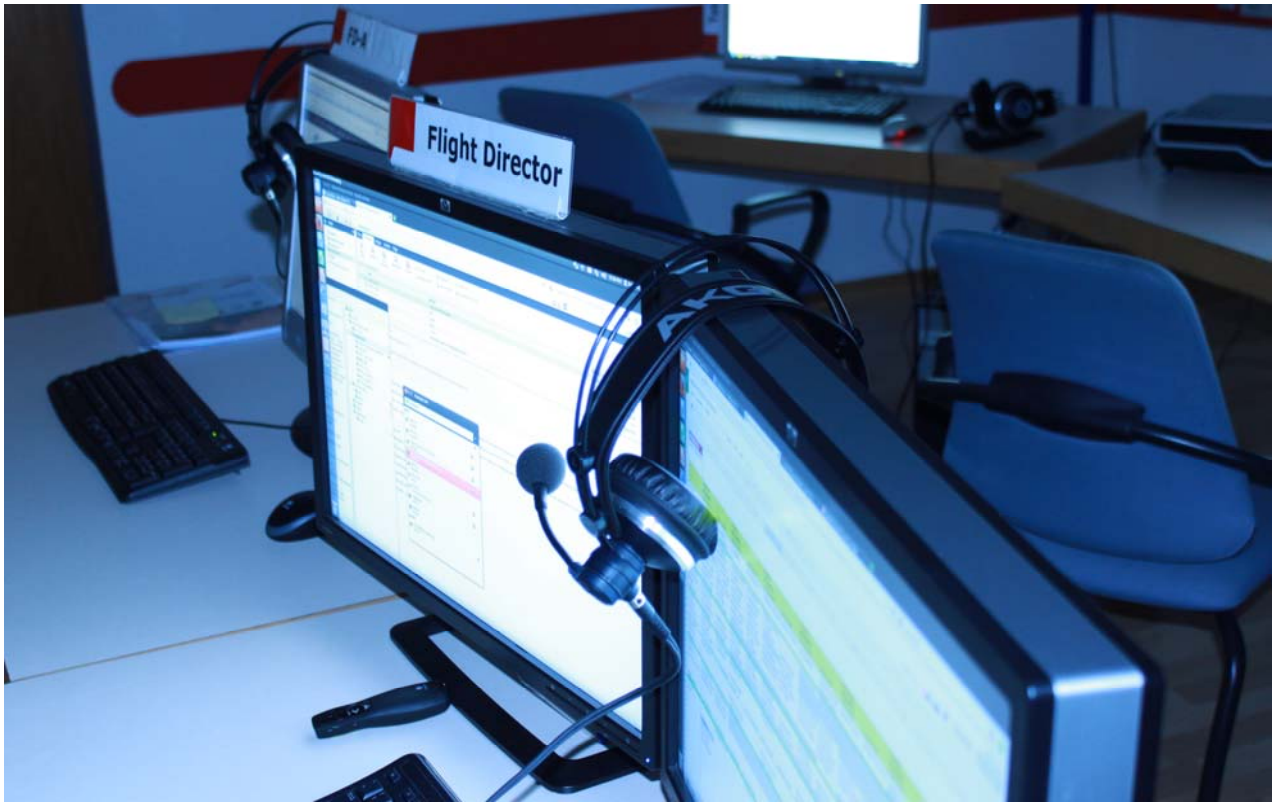


Between 04 – 10 October 2013, the World Space Week Association, in partnership with the Space Generation Advisory Council, Mars Society, the Austrian Space Forum and the Kiwispace Foundation joined up for a series of public Mars analog research demonstrations, including an analog expedition at the Mars Desert Research Station in Utah.

This document reports on the World Space Week flagship project. The scientific data are hosted by the Austrian Space Forum Multi-Mission Data Archive.

PARTNERS

Table of Contents



1. Key personnel

World Space Week Flagship Project lead

- **Gernot Groemer**, president Austrian Space Forum (gernot.groemer@OeWF.org)
- **Remco Timmermans**, Executive Director WSW-A (rtimmermans@worldspaceweek.org)
- **Haritina Mogosanu,** World Space Week / Kiwispace (hmogosanu@worldspaceweek.org)

Mission Control Center (Austrian Space Forum , Sillufer 3a, 6020 Innsbruck, Austria@ CEST)

- Project coordinator: **Gernot Groemer**
- Assistant: **Agnieszka Sekula**
- Flight Plan team lead: **Sebastian Hettrich**
- Flight Plan deputy team lead: **Nina Sejkora**
- IT team lead: **Thomas Bartenstein**

Mars Desert Research Station: Mars Society

- Dir. MDRS Operations: **Shannon Rupert**, (srupert@marssociety.org)
- Media & Public Relations: **Michael Stoltz**

Project Media Officer

- Media Team lead: **Anita Heward,** Deputy: **Monika Fischer** (monika.fischer@OeWF.org)

2. Project aims

The top-level objectives of the project were to:

- Provide a platform to bring the 2013 WSW theme to life and to a worldwide audience;
- Inspire event organizers and participants about the future of space exploration;
- Excite children about learning and their future;
- Show the benefits of Mars exploration to society;
- Foster international cooperation in space outreach and education.

Two Mission components

- The MDRS Mission:
  - was outreach & education focused,
  - saw an international crew stationed at the Mars Desert Research Station supported by the OeWF Mars Mission Control Center.
- Global Satellite events:
  - In support of the WSW theme, the Mission Control Center provided Education and Outreach programs to support WSW events around the world.
  - Teams around the globe demonstrated their hardware, conducted telecons with schools, students and space enthusiasts. In selected cases, they also allowed the public to telecommand their respective hardware via web interfaces.

These activities were managed through the OeWF Mission Control Center.

Milestones

When	Where	What
04Oct2013	**Innsbruck, Austria**	• **Mission opening ceremony** • **Press conference**
05Oct2013	Innsbruck, Austria	• Tweet-up
04-08Oct2013	**Hanksville, Utah Sat. Partner countries**	• **MDRS WSW Mission** • **Satellite events, Telecons & remote sessions** • **Global outreach & education & science activities**
09Oct2013	Innsbruck Austria	• Mission close-out
Until Mid-Oct2013	Virtual	• Debriefing, Lessons learned, documentation • De-mobilization of MCC

Daily Highlights

Friday 4 October - Highlights

Launch & Mass telecon : we are GO!

Earth Master Sample announcement

Spotlight on…

- Part Time Scientists (Berlin)

Saturday 5 October - Highlights

WSW 2013 Tweetup

Austria's Aouda.X dons up.

Spotlight on…

- Puli Rover (Budapest, Hungary)
- MAVRIC Rover (Iowa, USA)

Sunday 6 October - Highlights

Life on Mars: Inside the Mars Desert Research Station

Spotlight on…

- Hyperion (Poland)
- MRover (Michigan, USA)

Monday 7 October - Highlights

Gandolfi spacesuit at Comex deep sea dive specialists

Spotlight on…

- MAGMA Rover (Poland)
- Comex/Gandolfi (France)

Tuesday 8 October - Highlights

Day of the Spacesuits

MASS EVA – Aouda.X, MDRS, North Dakota, Comex

Spotlight on…

- Aouda.X
- North Dakota

Wednesday 9 October - Highlights

Say 'Hi to Juno'

Spotlight on…

- ExoMars
- MDRS – End of expedition summary

Thursday 10 October - Highlights

Experimenting on Mars (back on Earth)

Spotlight on…

- CAB – Mars Simulation Chamber

Official Partners involved

Key partners

1. World Space Week: Denis Stone, Remco Timmermans and Haritina Mogosanu
2. Space Generation Advisory Council: Christopher Vasco
3. Austrian Space Forum: Gernot Groemer
4. Mars Society: Robert Zubrin and Shannon Rupert
5. Kiwispace Foundation: Mark Mackay

Satellite Event partners / Rovers & Spacesuit simulators

Team	Country	Contact	email address
ABM Space	Poland	Mateusz Jozefowicz	mateusz.jozefowicz@abmspace.com
		Robert Wojciechowski	robert.wojciechowski@abmspace.com
CAB-INTA	Spain	Alejandro Catalá Espí	alejandrocatala@gmail.com
		Fernando Rull Pérez	rull@fmc.uva.es
Comex/ Gandolfi-Suit	France	Peter Weiß	p.weiss@comex.fr
EXOMARS	European	RAL Space / Aron Kisdi	Aron.kisdi@stfc.ac.uk
		Sev Gunes-Lasnet	Sev.gunes-lasnet@stfc.ac.uk
Hyperion	Poland	Michal Grzes	michalgrzes.1@gmail.com
MAVRIC	Iowa, USA	Matt Nelson	mnelson@iastate.edu
		Josh DeLarm	jdelarm@iastate.edu
MDRS Suits	Utah, USA	Jon Rask	jon.c.rask@nasa.gov
North Dakota	North Dakota, USA	Pablo de León	deleon@space.edu
		Lindsay Anderson	linds_ands@yahoo.com
PTS	Germany	Robert Boehme	rb@ptscientists.com
		Karsten Becker	kb@ptscientists.com
		Sven Wehlan	sw@ptscientists.com
Puli	Hungary	Dr. Tibor Pacher	tibor.pacher@pulispace.com
		Miklós Pathy	miklos.pathy@pulispace.com

Supporting partners and industrial sponsors

- Austrian Research Promotion Agency (FFG)
- UPC Austria (MCC broadband connection)
- Swarovsky Crystal, Austria
- AKG Headsets, Austria/Global
- Federal Government of the State of Tyrol, Austria

3. Mars Desert Research Station Mission

The Mars Desert Research Station (MDRS) in the San Rafael desert of Utah (close to Hanksville) is operated by the Mars Society to serve as a test bed for planetary surface operation studies, helping to define key habitat design features, field exploration strategies, tools, technologies and crew selection protocols.

During the World Space Week analog mission, the team of six simulated elements of a human Mars operation. The mission focused on outreach & education between 4th and 8th of October 2013 under the command of Jon Rask (First Officer: Haritina Mogosanu).

The mission was directed by the Mission Control Center (MCC) – Innsbruck, Austria, supported by Mars Society with the traditional Mission Support team, according to the safety and policy code of conduct of the Mars Society.

3.1. Mission Outreach & Education

The purpose of the WSW MDRS mission was outreach. The crew focussed on attending video teleconferences with various schools and student groups worldwide. The briefing for the schools, the timing, content and duration of their interactions with the crew was managed by the MCC/Innsbruck.

3.2. Mission Science

D-TREX

PI: Alexander Soucek, Austrian Space Forum, Austria

D-TREX was a follow-up experiment of the DELTA© experiment, which was firstly performed during the MARS2013 mission of the Austrian Space Forum in Morocco.

DELTA© is a planning tool based on statistical measurement, which shows the average time delay between performing typical activities with the spacesuit (Extra Vehicular Activities - EVA) as compared to performing same activities unsuited.

The original DELTA© experiment was based on a specially designed set of simulation hardware and an obstacle path of 9x20m, directing the analog astronauts into defined movement patterns.

Change detection[1]

PI: Akos Kereszturi, Konkoly Thege Miklos Astronomical Institute, Hungary

Documenting geomorphological changes on several key sites.

Geomorphic change is very slow in the deserts of the South-West US, even slower on Mars. The Martian landscape is characterized by large well rounded boulders and angular rock fragments.

E.g., large -commonly well rounded- boulders were emplaced onto gravel plains. After emplacement, these rocks were fragmented and disassembled. Nests of angular rock fragments are marking the locations of preexisting larger rocks. Here, in the absence of recent chemical weathering, mass movements, insolation weathering, Aeolian processes and salt weathering are the processes shaping the landscape.

Since some desert varnish in the area has been dated 30000 years old it is possible that more considerable changes occur on a thousand-year scale.

The crew continued the observations at the location[2].

SediChem

PI: Csilla Orgel, Eötvös Lorand University, Hungary

Analyze small scale, spherical shaped concretions in the geological context and collect fresh samples from the outcrop. The study is a follow up from the work of MDRS crew 125.

Small scale 0.5 – 1 cm hematite spherules have been identified by Mars Exploration Rover “Opportunity” in El

[1] Follow-up of a MDRS expeditions 42 and 71 (HungaroMars 2008) experiment,

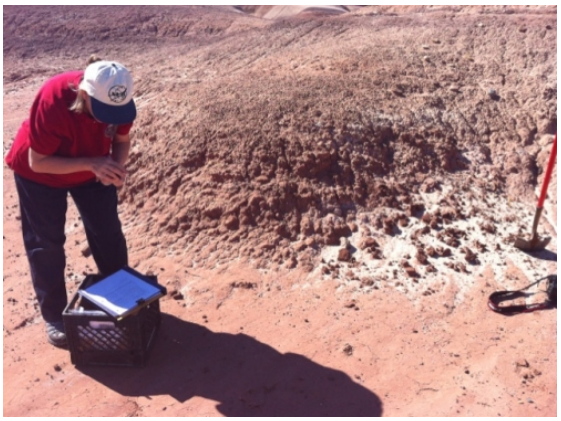
[2] location based upon the “Geography Final Report of MDRS Crew 42 and 71”, edited by Henrik Hargitai.

Capitan Formation and recently working “Curiosity” rover also has discovered concretion-like features at Yellowknife Bay area in Gale-crater on Mars. Concretions from the desert of Utah and near MDRS have been previously studied. These concretions occur in the Morrison Formation Brushy Basin Member and in the Dakota Sandstone Fm. The aim of the experiment was to take close-up images of the concretions in the outcrop (not in the debris), and collect hand sized samples for further investigation.

Sand-Sampling

PI: Willibald Stumptner, Austrian Space Forum

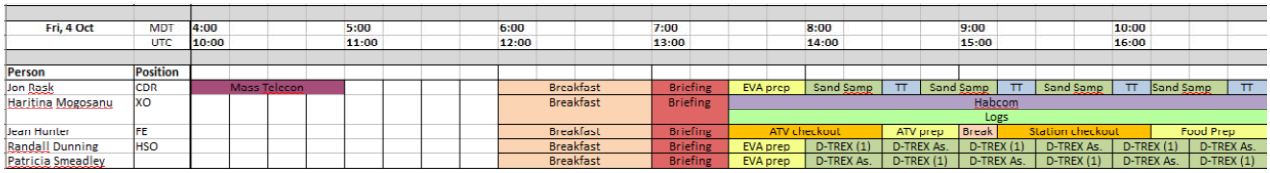
In order to create a database on particle size distributions and composition of Mars analog sites, the MDRS crew took sand samples for the geological archive of the OEWF.



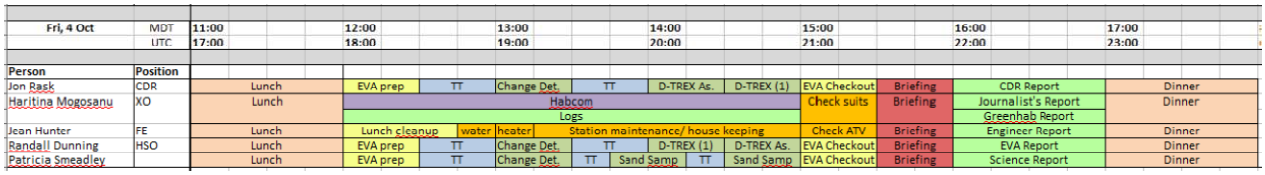
The data from this mission were archived in the OeWF Multimission Science Data Archive.

3.3. MDRS Activities & Daily Activity Plan

Daily Activity Plan (4 Oct)



Fri, 4 Oct	MDT	4:00				5:00				6:00				7:00				8:00				9:00				10:00			
	UTC	10:00				11:00				12:00				13:00				14:00				15:00				16:00			
Person	Position																												
Jon Rask	CDR	Mass Telecon								Breakfast				Briefing		EVA prep		Sand Samp		TT		Sand Samp		TT		Sand Samp		TT	
Haritina Mogosanu	XO									Breakfast				Briefing		Habcom													
																Logs													
Jean Hunter	FE									Breakfast				Briefing		ATV checkout			ATV prep		Break	Station checkout				Food Prep			
Randall Dunning	HSO									Breakfast				Briefing		EVA prep		D-TREX (1)		D-TREX As.		D-TREX (1)		D-TREX As.		D-TREX (1)		D-TREX As.	
Patricia Smeadley										Breakfast				Briefing		EVA prep		D-TREX As.		D-TREX (1)		D-TREX As.		D-TREX (1)		D-TREX As.		D-TREX (1)	



Fri, 4 Oct	MDT	11:00				12:00				13:00				14:00				15:00				16:00				17:00			
	UTC	17:00				18:00				19:00				20:00				21:00				22:00				23:00			
Person	Position																												
Jon Rask	CDR	Lunch				EVA prep		TT		Change Det.		TT		D-TREX As.		D-TREX (1)		EVA Checkout		Briefing		CDR Report				Dinner			
Haritina Mogosanu	XO	Lunch				Habcom												Check suits		Briefing		Journalist's Report				Dinner			
						Logs																Greenhab Report							
Jean Hunter	FE	Lunch				Lunch cleanup		water	heater	Station maintenance/ house keeping								Check ATV		Briefing		Engineer Report				Dinner			
Randall Dunning	HSO	Lunch				EVA prep		TT		Change Det.		TT		D-TREX (1)		D-TREX As.		EVA Checkout		Briefing		EVA Report				Dinner			
Patricia Smeadley		Lunch				EVA prep		TT		Change Det.		TT		Sand Samp		TT		Sand Samp		EVA Checkout		Briefing		Science Report				Dinner	

Actual activities

Time (MDT) Utah		04:00	09:00	09:30	10:00	11:00	12:00	13:00	14:00	15:00
Jon R.	CDR	Mass Telecon	Breakfast	Briefing	Outreach	ATV check	Check Hab Condition		Briefing	Visitors
Haritina M.	XO	Mass Telecon	Breakfast	Briefing	Outreach	ATV check	Check Hab Condition		Briefing	Visitors
Jean H.	FE		Breakfast	Briefing	Outreach	ATV check	Check Hab Condition		Briefing	Visitors
Randall D.	HSO	Mass Telecon	Breakfast	Briefing	Outreach	ATV check	Check Hab Condition		Briefing	Visitors
Patricia S.			Breakfast	Briefing	Outreach	ATV check	Check Hab Condition		Briefing	Visitors

	16:30	17:00	18:00	19:00	20:00
Jon R.	EVA Prep.	D-TREX	D-TREX	EVA Checkout	Dinner
Haritina M.	EVA Prep.	D-TREX	Change detect.	EVA Checkout	Dinner
Jean H.	EVA Prep.	D-TREX	Change Detect.	EVA Checkout	Dinner
Randall D.	Habcom	Habcom	Habcom	Habcom	Dinner
Patricia S.	EVA Prep.	D-TREX	Change Detect.	EVA Checkout	Dinner

COMPLETE REPORT 4 Oct 2013

The 2013 MDRS Crew for World Space Week (WSW) arrived at the hab around 12:15 am October 4. Jamie Guined cancelled her participation in the crew due to NASA-shutdown related issues. The MDRS WSW crew assessed hab conditions during the morning. All systems work normally. One non-starting blue ATV had a leaky gas shut-off/on/reservoir valve. The two-way radios that were available were not in good condition and were not operating well.

Science Activities

One “D-TREX” EVA was performed in sim and then repeated out of sim. The test assessed the effect space suit simulators have on the time a task is required to complete. The crew measured the amount of time it took to complete four specific tasks in sim: (1) Gathering of a soil sample (2) Gathering of a rock sample (3) walking 20 meters and (4) walking 200 meters. All four tasks were then repeated out of sim. Time data was collected for 36 operational tests (some replicates were completed). Hari, Jean, and Tricia completed 12 tasks each. In addition to the Dtrex EVA, a “change detection” EVA was also performed by Hari Jean and Tricia. The EVA crew revisited “White Mushroom Field” near the hab to gather imagery at the exact location images were taken in 2006 and 2008, to assess the amount of visible erosion that has occurred over time.

EVA Suit Report

EVA suits were used during the D-TREX experiment. Haritina, Jean and Tricia suited up in the afternoon without issue. Suiting up took 30mins apx. Most of the time was spent working with the radios which did have issue. The EVA consisted of walking, bending down and riding ATV’s. The suits performed up to standard.

Daily Activity Plan (5 Oct)

Sat, 5 Oct	MDT	6:00			7:00			8:00			9:00			10:00			11:00	
	UTC	12:00			13:00			14:00			15:00			16:00			17:00	
Person	**Position**																	
Jon Rask	CDR	Breakfast			Briefing	EVA prep		TT			Change Det			TT	TT	Sand	TT	Lunch
Haritina Mogosanu	XO,FA	Breakfast			Briefing	ATV Prep		Station Checkout		Outreach Romania		Tweet-up		Station Maint/Outreach				Outreach Wellos Museum
Jean Hunter	FE	Breakfast			Briefing	EVA prep		TT			Change Det			TT		Food Prep		Lunch
Randall Dunning	HSO	Breakfast			Briefing	EVA prep		TT			Change Det			TT	TT	Sand	TT	Lunch
Patricia Smeadley		Breakfast			Briefing	Habcom/Logs												Lunch

Sat, 5 Oct	MDT	12:00			13:00			14:00			15:00			16:00			17:00	
	UTC	18:00			19:00			20:00			21:00			22:00			23:00	
Person	**Position**																	
Jon Rask	CDR	EVA prep			Sedi			Sedi Outreach			Sand			EVA Checkout	Briefing	CDR Report		Dinner
Haritina Mogosanu	XO,FA	Lunch			Lunch cleanup			Water	Heater		Station Maint/Greenhab				Briefing	Greenhab/Engineer Report		Dinner
Jean Hunter	FE	EVA prep	D-TREX (1)		D-TREX As.			Sedi Outreach			D-TREX As.	D-TREX (1)		EVA Checkout	Briefing	Eva Report		Dinner
Randall Dunning	HSO	EVA prep	D-TREX As.		D-TREX (1)			Sedi Outreach			D-TREX (1)	D-TREX As.		EVA Checkout	Briefing	Science Report		Dinner
Patricia Smeadley		Habcom/Logs												Check Suits	Briefing	Journalist Report		Dinner

Actual Activities

Time (MDT) Utah		08:00	09:00	11:00	12:00	14:00	15:00	16:00	17:00-20:00	20:00	21:00
Jon R.	CDR	Briefing	Breakfast	Outreach	Administ. Meeting	EVA Prep.	Change Detection	Briefing	D-TREX	Dinner	Reports
Haritina M.	XO	Briefing	Tweet up	Outreach	Administ. Meeting	Station Maint	Soil Sampling	Briefing	D-TREX	Dinner	Reports
Jean H.	FE	Briefing	Breakfast	Outreach	Administ. Meeting	Station Maint	Soil Sampling	Briefing	D-TREX	Dinner	Reports
Randall D.	HSO	Briefing	Breakfast	Outreach	Administ. Meeting	EVA Prep.	Change Detection	Briefing	D-TREX	Dinner	Reports
Patricia S.		Briefing	Breakfast	Outreach	Administ. Meeting	Station Maint	Habcom	Briefing	D-TREX	Dinner	Reports

COMPLETE REPORT 5 Oct 2013

Numerous telecons were held throughout the day in support of the WSW, and we initiated EVAs in the afternoon. Randy and Jon traveled ~10km north of the hab to Toothy Ridge, Jason's Rock, and Giant's Toes, and gathered multiple images of each for the change detection experiment. Hari and Jean also performed a Sand Sampling EVA as well. D-TREX EVAs were also performed by all crew members late in the afternoon, to gather more time data from tasks performed both in sim and out of sim.

Journalist

Crew had reached a point in the mission where everyone was comfortable with each other enough to get down to

business and work together cohesively. We also felt that we had a firmer grip on our mission protocols and goals.

Ian, the journalist visitor, started packing up after a morning of getting those last shots in. He added a lot to this mission, probably more than he realizes. His interviews and his questioning the crew on why the crew were there, what were they doing there, etc. really made them think. His being there proves that MDRS is of interest to people who are making a difference. He will take his experience at MDRS and spread his stories around the world, through film. Ian would try and send us some of the footage. This could come in useful for public relations and outreach. The film he is working on should be out next year sometime.

Randy and Jon started out on their change detection experiment around 2:00pm MST. Prior to heading out 3 out of the 5 ATV's were in good working order. Not 2 minutes after they left Randy's ATV stalled. Thankfully they were very close to the Hab – just out on Cow Dung Rd. They both came back and got Randy a working ATV. They were driving out quite a ways – towards Toothy Ridge and Jason's Rock. They were gone for several hours. They were also out of radio contact for most of that time, which was somewhat concerning considering the ATV issues. The first ATV check pointed out having 4 working out of 5.

Jean and Hari went out hiking around the Hab performing the soil sample experiment. The soil sample experiment had a slight snag. The original sampler collection pen did come in the mail in time. An alternate collection method was used.

All crew donned EVA suits and did D-TREX experiment. The experiment went well and they were a lot of fun to perform. The suits were getting easier to get in and out of..

Daily Activity Plan (6 Oct)

Sun, 6 Oct	MDT	6:00		7:00		8:00		9:00		10:00		11:00
	UTC	12:00		13:00		14:00		15:00		16:00		17:00
Person	**Position**											
Jon Rask	CDR	Breakfast		Briefing	Habcom/Logs							Lunch
Haritina Mogosanu	XO,FA	Breakfast		Briefing	EVA Prep	D-TREX Ass.	D-TREX (1)	Sand	EVA checkout	D-TREX 1 doffed		Lunch
Jean Hunter	FE	Breakfast		Briefing	ATV Prep	Station Maintenance/outreach				Food Prep		Lunch
Randall Dunning	HSO	Breakfast		Briefing	EVA Prep	Sand	D-TREX Ass.	D-TREX (1)	EVA checkout	D-TREX 1 doffed		Lunch
Patricia Smeadley		Breakfast		Briefing	EVA Prep	D-TREX (1)	Sand	D-TREX Ass.	EVA checkout	D-TREX 1 doffed		Lunch

Sun, 6 Oct	MDT	12:00		13:00		14:00		15:00		15:30 to evening	
	UTC	18:00		19:00		20:00		21:00			
Person	**Position**										
Jon Rask	CDR	Habcom/Logs									CDR Report
Haritina Mogosanu	XO,FA	EVA Prep	TT	Change Det	Sand	TT	Sand	TT	Sand	TT	EVA checkout	finish uncompleted tasks, experiments and reports	EVA Report
Jean Hunter	FE	EVA Prep	TT	Change Det	Sand	TT	Sand	TT	Sand	TT	EVA checkout		Science Report
Randall Dunning	HSO	ATV Prep	Lunch clean-up	Water Heater	Station Maintenance/Greenhab/Outreach					Check suits			Greenhab/Engineer Report
Patricia Smeadley		EVA Prep	TT	Change Det	Sand	TT	Sand	TT	Sand	TT	EVA checkout		Journalist Report

Actual Activities

Time (MDT) Utah		06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00
Jon R.	CDR	Breakfast	Briefing	Plan Activ.	HabCom / maintenance			Visitors	Briefing
Haritina M.	XO	Breakfast	Briefing	Plan Activ.	Outreach/Maintenance			Gas Town	Gas Town
Jean H.	FE	Breakfast	Briefing	Plan Activ.	EVA Prep	Sand	Sand	Sand	EVA Checkout
Randall D.	HSO	Breakfast	Briefing	Plan Activ.	EVA Prep	Change Det	Change Det	SediChem	SediChem
Patricia S.		Breakfast	Briefing	Plan Activ.	EVA Prep	Change Det	EVA Checkout	Gas Town	Gas Town

	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
Jon R.	Lunch	HabCom		Hab Mainten.	Briefing	Dinner	Visit	Visit	Report	Report
Haritina M.	Lunch	EVA Prep	Sand	EVA Checkout	Briefing	Dinner	Visit	Visit	Report	Report
Jean H.	Lunch	EVA Prep	Sand	EVA Checkout	Briefing	Dinner	Visit	Visit	Report	Report
Randall D.	EVA Checkout	Lunch/EVAPrep	Change Det.	EVA Checkout	Briefing	Dinner	Visit	Visit	Report	Report
Patricia S.	Lunch	EVA Prep	Change Det.	EVA Checkout	Briefing	Dinner	Visit	Visit	Report	Report

COMPLETE REPORT 6 Oct 2013

The crew performed numerous EVAs throughout the day in support of the Sand Sampling, SediChem, and Change Detection experiments. Randy and Tricia started the EVAs and traveled ~11km north of the hab, past Toothy Ridge to gather images of each of Cracking Table for the change detection experiment and gather sand samples as well. They discovered the ATVs did not have enough fuel, which delayed their EVAs. Hari and Jean also performed a Sand Sampling EVAs near the hab. Randy also took pictures for the SediChem experiment. Randy and Tricia explored the Cracking Table field site. Part of the day was used for habitat maintenance.

There were six visitors: four unexpected. Jean took advantage of this "outreach opportunity" and provided them a great explanation. DG, visitor from Hanksville, was the fifth visitor. He talked with the crew, and checked fuel and water levels. He also helped transfer water from the trailer tank to the hab external tank, and helped with changing the oil in the generator. While they were at the generator, they noticed that the acid in the generator battery was boiling. John Barainca of the Mars Society was the sixth visitor. He's a veteran of MDRS and is someone who has helped the society greatly. The crew took time to talk with the visitor about Mars, exploration, astronomy, MDRS, and went outside to observe a flyover of the International Space Station. They also discussed plans and ideas on how crews might be able to increase production in the greenhab.

Science

Sedi-Chem (Randall Dunning, lead)

Randy identified two sites on Hab Ridge, approximately 40m west of the Hab, for photography of concretions. The sites were photographed from approximately 5 m, 50 cm and 5 cm distances using several different scale items.

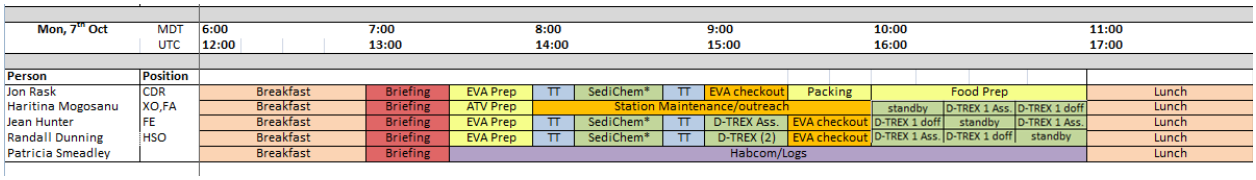
Sand Sampling (Jean Hunter, lead)

The sand sampling locations near the Hab, specified in the 5 October 2013 DAP and scheduled for the morning of 6 October 2013, were sampled by Jean Hunter and Haritina Mogosanu. Once the sampling sites were located, sampling went smoothly and quickly.

The time and personnel allocations for the work schedule seemed to the crew to have been based on the assumption that all of them knew how to operate a GPS and do soil sampling.

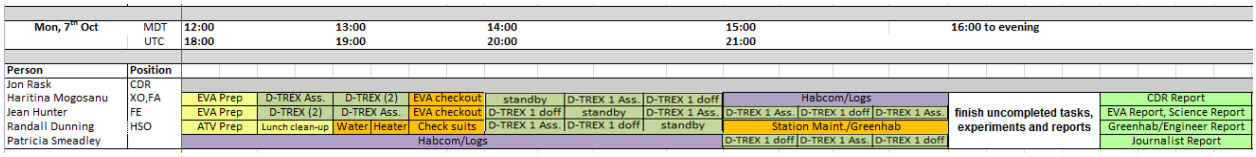
There was difficulty matching up the coordinates provided for sand sampling and change detection locations, with the coordinates on their GPS. MDRS uses UTM 27 CONUS as its standard geographical coordinates. WSW uses decimal degrees, and the closest their GPS gets to decimal degrees is degrees and decimal minutes

Daily Activity Plan (7 Oct)



Mon, 7th Oct	MDT	6:00	7:00	8:00	9:00	10:00	11:00
	UTC	12:00	13:00	14:00	15:00	16:00	17:00

Person	Position																							
Jon Rask	CDR	Breakfast			Briefing		EVA Prep		TT		SediChem*		TT	EVA checkout		Packing		Food Prep						Lunch
Haritina Mogosanu	XO,FA	Breakfast			Briefing		ATV Prep		Station Maintenance/outreach									standby		D-TREX 1 Ass.		D-TREX 1 doff		Lunch
Jean Hunter	FE	Breakfast			Briefing		EVA Prep		TT		SediChem*		TT	D-TREX Ass.		EVA checkout		D-TREX 1 doff		standby		D-TREX 1 Ass.		Lunch
Randall Dunning	HSO	Breakfast			Briefing		EVA Prep		TT		SediChem*		TT	D-TREX (2)		EVA checkout		D-TREX 1 Ass.		D-TREX 1 doff		standby		Lunch
Patricia Smeadley		Breakfast			Briefing		Habcom/Logs																	Lunch



Mon, 7th Oct	MDT	12:00	13:00	14:00	15:00	16:00 to evening
	UTC	18:00	19:00	20:00	21:00	

Person	Position																							
Jon Rask	CDR																							
Haritina Mogosanu	XO,FA	EVA Prep		D-TREX Ass.		D-TREX (2)		EVA checkout		standby		D-TREX 1 Ass.		D-TREX 1 doff	Habcom/Logs								CDR Report	
Jean Hunter	FE	EVA Prep		D-TREX (2)		D-TREX Ass.		EVA checkout		D-TREX 1 doff		standby		D-TREX 1 Ass.	D-TREX 1 Ass.		D-TREX 1 doff		D-TREX 1 Ass.	finish uncompleted tasks, experiments and reports			EVA Report, Science Report	
Randall Dunning	HSO	ATV Prep		Lunch clean-up		Water	Heater	Check suits		D-TREX 1 Ass.		D-TREX 1 doff		standby	Station Maint./Greenhab								Greenhab/Engineer Report	
Patricia Smeadley		Habcom/Logs													D-TREX 1 doff		D-TREX 1 Ass.		D-TREX 1 doff				Journalist Report	

Actual Activities

Mon, 7th Oct		7:30	8:00	9:00	10:00	11:00	11:30	12:00
Jon R.	CDR	Briefing	Breakfast	Mars Society Proposals	Mars Society Proposals	EVA Prep	Sedi	LEAVES
Haritina M.	XO,FA	Briefing	Breakfast	Mars Society Proposals	Mars Society Proposals	Greenhab	Went downtown	Lunch
Patricia S.		Briefing	Breakfast	Mars Society Proposals	Mars Society Proposals	Observatory	Went downtown	Lunch
Randall D.	HSO	Briefing	Breakfast	Mars Society Proposals	Outreach	EVA Prep	Sedi	Lunch
Jean H.	FE	Briefing	Breakfast	Mars Society Proposals	Mars Society Proposals	Greenhab	Greenhab	Lunch

Mon, 7th Oct	13:00	14:00	15:00	16:00
Jon R.				
Haritina M.	Communications	Prep. Obstacle Course	Prep. Obstacle Course	Prep. Obstacle Course
Patricia S.	Out Town	Out Town	Out Town	Return
Randall D.	Communications	Prep. Obstacle Course	Prep. Obstacle Course	Prep. Obstacle Course
Jean H.	Out Town	Out Town	Out Town	Return

COMPLETE REPORT 7 Oct 2013

The highlight of the day was the collection of the Earth Master Sample by Commander Rask and Mission Specialist Dunning during their EVA to perform the SediChem experiment.

Concretions, which were the target of the SediChem experiment, could also be observed on Mars. They are generally signalling the past presence of water in that area. On Earth, they are formed often by the precipitation of a considerable amount of cement around a nucleus which is quite often organic, for instance a leaf or a fossil. Mars seems to be rich on concretions as well,

also known by their nickname "blueberries". The Martian blueberries are abundant in hematite - which is a mineral form of iron.

Scientists are getting very excited when they find concretions as they are indicators of either past presence of organic material and definitely of water. However they can also be formed from volcanic activity and so a scientist has to always consider all possible hypotheses when they are looking to understand how things formed on another place, especially one so remote as Mars. That is why it is very important that the people who collect the samples and the people who analyze them work together very closely in missions like this one. Most importantly is that the field scientists know what to look for in the immensity of a field and choose the samples that are most relevant for study.

Jon and Randy took pictures and collected samples at the site. The concretions near MDRS are small but hard and compact sedimentary rocks. They look mostly spherical or ovoid and are formed by the precipitation of the mineral cement within the spaces between the sediment grains.

The team proceeded also to collect the Earth Master sample, which proved to be not just your usual stone. The sample, according to Commander Rask, is "a piece of petrified wood, red like the planet Mars and proof that Earth's biology is embedded within Earth's geology".

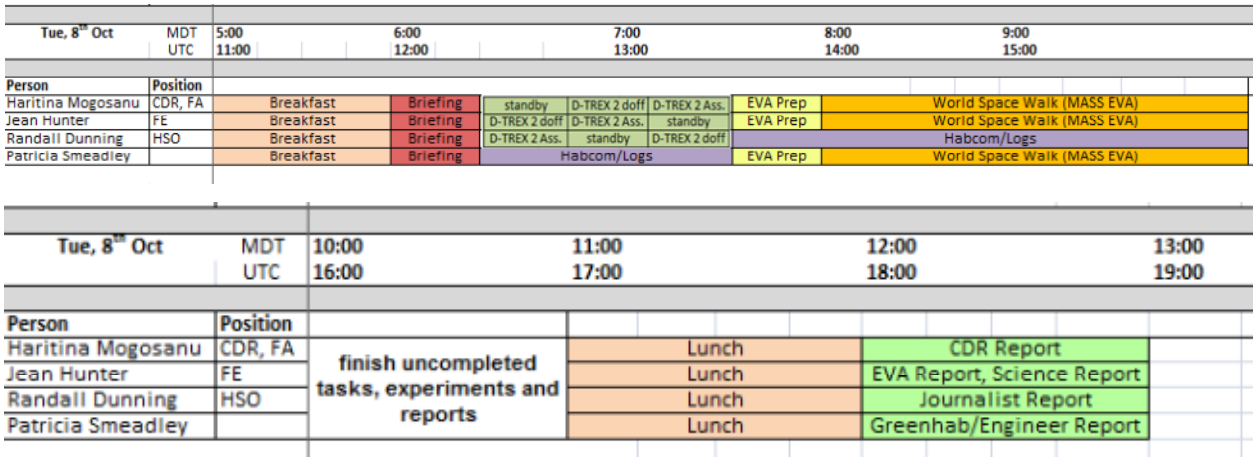
With this one last task done, Commander Rask returned to Earth, departing around lunchtime and handed over the hab to the rest of the crew. The crew prepared very carefully and rehearsed the tasks for next day.

The greenhab was reorganised by Jean and Hari, since the unusually high temperature during the day, prevented the crew from performing any D-Trex experiments, which would have required them to be suited up. Hari, Tricia and John Barainca went up in the orbit at Mesa Farm Cafe to acquire the new seeds for the greenhouse, which were planned to be planted for the next field season at MDRS.

Tricia finalised the settings at the MDRS's famous Musk Observatory that will allow students from around the world to connect remotely and take pictures of the beautiful night sky of Utah with all the celestial objects that are to be found at this latitude.

An MDRS Food Study was undergoing as well. Jean says that her food touches on all three of kinds of problems that we have to solve to go to space: deals with the medical problems of the nutritional aspect of survival in space, the life support and engineering problem of choosing the right type of food to be packed and supplied for crews living in space, and it touches on the psychological aspect on the long duration space missions because it provides choices and variety and creativity in an environment where the surroundings and the activities are strictly defined by other people.

Daily Activity Plan (8 Oct)



Tue, 8th Oct	MDT	5:00		6:00		7:00			8:00		9:00	
	UTC	11:00		12:00		13:00			14:00		15:00	
Person	Position											
Haritina Mogosanu	CDR, FA	Breakfast		Briefing		standby	D-TREX 2 doff	D-TREX 2 Ass.	EVA Prep		World Space Walk (MASS EVA)	
Jean Hunter	FE	Breakfast		Briefing		D-TREX 2 doff	D-TREX 2 Ass.	standby	EVA Prep		World Space Walk (MASS EVA)	
Randall Dunning	HSO	Breakfast		Briefing		D-TREX 2 Ass.	standby	D-TREX 2 doff	Habcom/Logs			
Patricia Smeadley		Breakfast		Briefing		Habcom/Logs			EVA Prep		World Space Walk (MASS EVA)	

Tue, 8th Oct	MDT	10:00	11:00	12:00	13:00
	UTC	16:00	17:00	18:00	19:00
Person	Position				
Haritina Mogosanu	CDR, FA	finish uncompleted tasks, experiments and reports	Lunch	CDR Report	
Jean Hunter	FE		Lunch	EVA Report, Science Report	
Randall Dunning	HSO		Lunch	Journalist Report	
Patricia Smeadley			Lunch	Greenhab/Engineer Report	

Actual Activities

Tue, 8th Oct	MDT	6:00	6:30	7:00	8:00	9:00	10:00
	UTC	12:00	12:30	13:00	14:00	15:00	16:00
Haritina M.	XO,FA	Breakfast		Briefing	EVA Prep	Mass EVA	Prep. To Leave
Jean H.	FE	Breakfast		Briefing	EVA Prep		Prep. To Leave
Randall D.	HSO	Breakfast		Briefing	HabCom		Prep. To Leave
Patricia S.		Breakfast		Briefing	EVA Prep		Prep. To Leave

COMPLETE REPORT 8 Oct 2013

The main event of the day, the World Space Week walk was a huge success although not without hiccups on the comms side. The internet connection at MDRS failed a few times. One of them was exactly when the password had to be exchanged to make up the key phrase of the walk. Luckily the crew managed to reset the internet connection very quickly and all went well in the end. The Crew stationed at MDRS broadcasted our one-word contribution to the special message: "Space Research Connects People"!

Jean Hunter and Tricia Smedley suited up for the sim, and Hari played the role of the camera operator while Randy stayed in the Hab as support on Mumble. They used Mumble on two iPhones "attached" to the analog astronauts by ways of duct tape (one of the things I would always choose to take with me on Mars, and rope). Google hangout was broadcasted through an iPad.

4. World Space Walk

Three Mars analog spacesuit teams perform simultaneous experiments for World Space Walk 2013

One of the key elements of equipment for a future human expedition to Mars will be a spacesuit that allows astronauts to roam the Martian surface. Now, for the first time, three Mars analog suit development teams around the world have performed simultaneous experiments, coordinated from a single mission control center. The experiments are a first step in developing a universal standard for comparing Mars analog suits in terms of the impact they have on the agility and dexterity of the suit wearers. The 'World Space Walk 2013' coordinated tests took place on Tuesday 8th October as a highlight of World Space Week 2013, which this year has the theme of 'Exploring Mars, Discovering Earth'. The tests were designed and led by the Austrian Space Forum, which also provided the Mission Control Centre for the campaign. The spacesuit experiments were carried out in Innsbruck, North Dakota, France and Utah.

Explorers on the surface of Mars will face a cold, dusty environment with a thin atmosphere of mainly carbon dioxide. Away from any settlement on an Extra Vehicular Activity (EVA), they will need to rely on their spacesuit to provide oxygen to breathe and a comfortable temperature, pressure and atmosphere in which to work.

Experiment designer, Alexander Soucek of the Austrian Space Forum explains, "In order to provide the safe environment needed by astronauts, spacesuits can be cumbersome and heavy. If future mission planners are to select the right suit for the right expedition, they need to have independent data for comparing and evaluating suits created by different teams."

The 'World Space Walk' spacesuit testers performed agility and mobility tasks wearing:

- the Aouda.X suit developed by the Austrian Space Forum in Innsbruck, Austria
- the NDX-2 suit developed by the Human Spaceflight Laboratory of the University of North Dakota, USA
- analog suits at the Mars Desert Research Station (MDRS), Utah, USA.

The deep-sea diving specialists, Comex, in Marseille, France also participated in the tests by monitoring telemetry data from the suits. Comex is the designer the Gandolfi spacesuit, which

was used recently by the European Space Agency to recreate the activities of the Apollo 11 astronauts under the sea in the Bay of Marseilles.

"The World Space Walk experiments are designed to give a statistical measurement of the average time delay between performing typical activities wearing the spacesuit as compared to performing same activities unsuited," says analog astronaut, Luca Foresta, who participated in the World Space Walk experiments wearing the Aouda.X suit.

The World Space Walk tests are a continuation of experiments run by the Austrian Space Forum during their Mars 2013 analog field-campaign, which took place in Morocco in February this year. During the campaign, analog astronauts carried out six experiments first wearing the Aouda.X suit and then without the suit, testing out different aspects of agility e.g. walking over rough terrain or the dexterity of hands and fingers when working with small technical devices. The analog astronauts followed pre-defined movement patterns along an obstacle path of 9 meters by 20 metres. Results from the Mars 2013 tests are expected for publication in a special edition of the scientific journal, Astrobiology for publication in early 2014.

"If we are going to prepare for a human mission to Mars in the future, we need to have as much knowledge as possible on the practicalities and limitations of working in spacesuits on planetary terrains. For World Space Walk 2013, we have had the amazing opportunity to work with four different teams who are developing spacesuits and to collaborate on the same set of tasks. This technical test is a simple, yet important, first milestone to compare different analog suit systems worldwide and to contribute to a growing area of research," says Gernot Groemer, the President of the Austrian Space Forum.

The World Space Walk suit testers performed the following three experimental activities wearing their Mars analog spacesuits:

- Complete obstacle course. Erect a tripod. Mount gnomon (sundial) on tripod.
- Complete obstacle course. Take camera from pocket. Take pictures of feet and horizon pointing north, south, east and west.
- Complete obstacle course. Take out sample bag, collect rock sample and place in bag. Lable sample bag and place in container.

Above: Peter Weiss / COMEX in front of the Hyperbaric chamber, form where the World Space Walk was monitored in confunction with the MCC/Innsbruck.

Below: Facebook montage, generating more than 4000 likes, and 361 shares within 24 hours.

5. Satellite Events

World Space Week 2013 mission organisers partnered with a series of leading planetary analog research entities: Google Lunar XPrize Teams, groups from the University Rover Challenge and any independent teams ranging from the US, to Malaysia, Pakistan, European countries etc.

Our goal was to reach out to a wide range of public and enthusiaze them about space exploration using the World Space Week events.

Minimum technical requirements that were required from the public in order to participate in these events:

- **Their availability of providing a web-cam to stream the activity** undertaken
- **Their availability to work with Google+ Hangouts**

Levels of involvement from the public

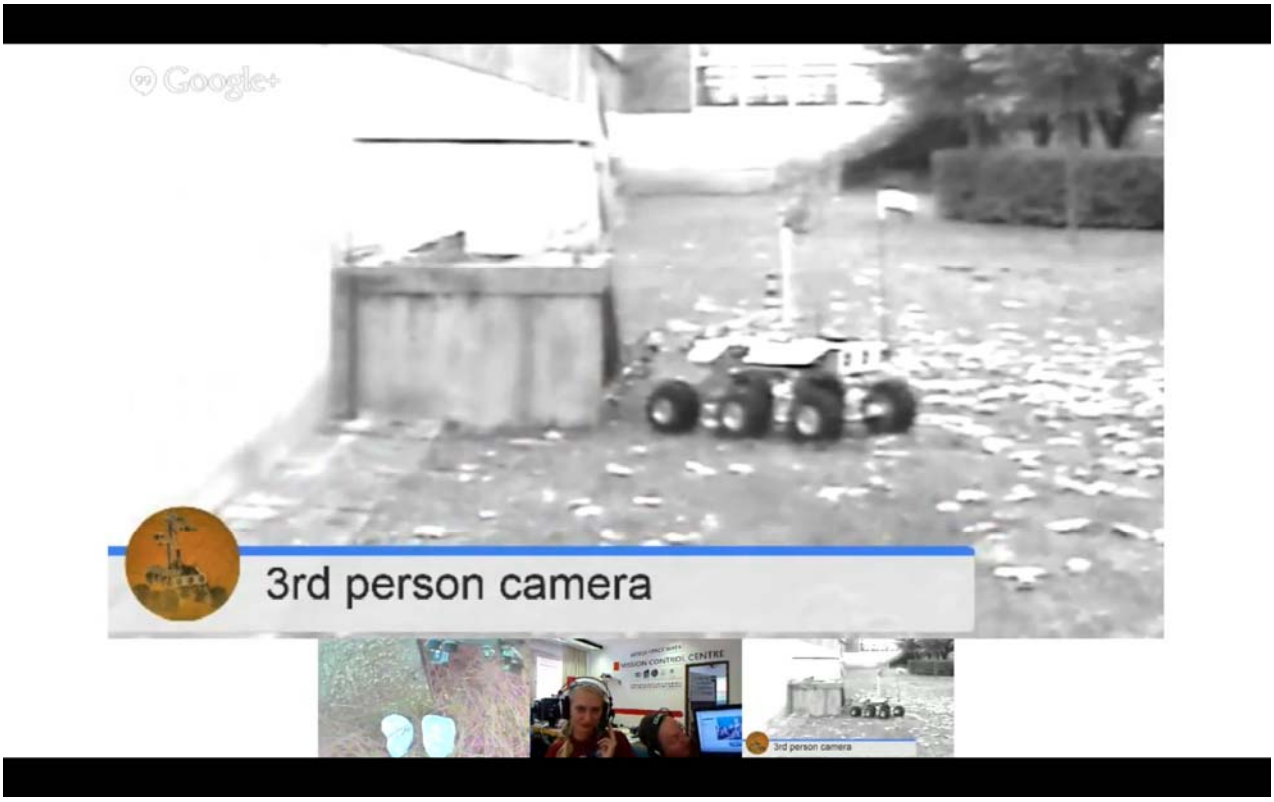
Dependant on the hardware available and its sensitivity:

- **full availability of the teams' hardware** for external control: (supervised) control of partner organisations hardware (rover, suit incl. suit-tester, etc) by external parties via Internet mumble connection, following the teams' and the MCC's rules; they can restrict the control team to a specific target group or allow only for limited operations,
- **limited control of the teams' hardware**- allowing for coordination of activities by external users without physical control over the hardware, external parties will "suggest" actions that will then be executed by the very satellite partner team,
- **Visual communication only-** external parties will be able to watch the activity in real time without any decision making power.

5.1. Objectives of the satellite events

- **public exposure –** an ample range of public events and well-coordinated media activities will allow for world-wide exposure of participating parties,
- **interface testing** – external control of provided hardware will provide valuable genuine interface and communication tests
- **insight into work of other space organizations** – these are professional organizations representing over a dozen nationalities. Our focus is on well-organized and highly skilled teams , which are manifesting similar agendas and display overlapping interests.

The events promoted mutually beneficial interactions under the Mars exploration umbrella and during the World Space Week which could open doors for possible collaborations in the future.



The Polish Hyperion Rover during an interaction with the British International School in Brussels.

5.2. Communication

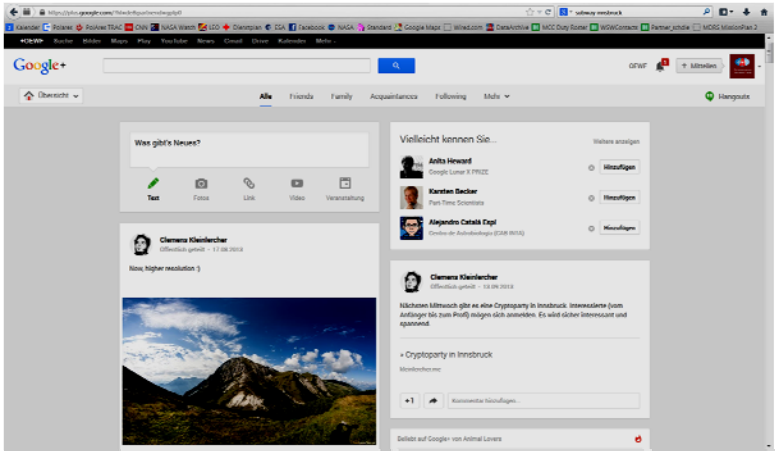
Communication for satellite event partners and MDRS

All partners had a defined time during which the communication with MCC/Innsbruck will take place. MCC/CONTACTS got in touch with a liaison of the respective partner well ahead this slot, to check the connection and briefly go over the activities with the team in advance.

The communication channels were:

- **Google+ Hangout** for School & Partner telecons / **Mumble** for Audio communication
- **Skype** as a backup (our nick: “mcc-at” and “mcc2-at”), **Telephone** as a 2nd-line back-up

Telecons via Google+ Hangout



The primary communication channel is via Google Hangout, as this allows for multiple videos, streaming and recording as well as displaying slides/videos etc. at the same time. Google Hangouts will also be streamed via Youtube, allowing for chat questions monitored by CONTACTS.

The satellite partners and schools were contacted in advance as follows:

T-24hrs	CONTACTS	Sends the standardized email reminder to school and partner
T-1hr	CONTACTS	prepares the call via Google Hangout with both school and partner
T-15min	TELECON	starting the Hangout with name: WorldSpaceWeek-PartnersNameTelecon; calling the partner, ensuring good connection. Partner remains on the line, muted, until the school joins in.
T-5min	TELECON	un-mutes the partner and calls the school.
T-0	TELECON	All three participants are fully enabled. Broadcasting starts. Greeting participants with a welcome message: asking briefly about good connection on both sides allowing for hellos, quick introduction to MCC; handing over the telecon to partner. Controlling the video stream on youtube (which video is presented) and assisting with any questions/ problems.

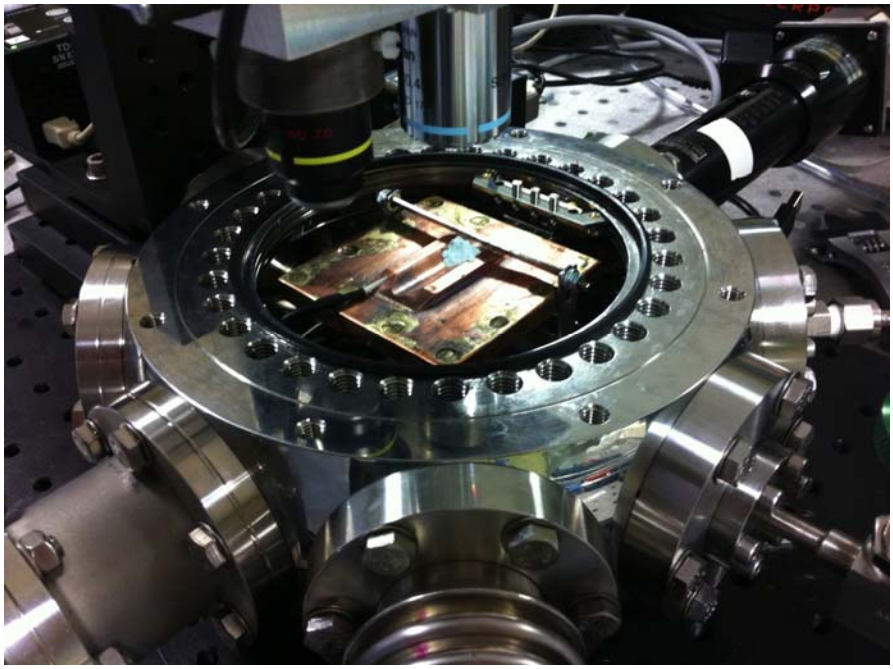
Postfach 76, A-1072 Wien ‖ Technikerstr. 21a, A-6020 Innsbruck
www.oewf.org , info@oewf.org

6. WSW Partner Organisations

6.1. ABM Space

Hardware type	Rover	
Hardware Name	Magma White	
Location	Toruń, Poland	
Institution	ABM Space Education	
Primary contact	Name	Mateusz Józefowicz
	Email address	mateusz.jozefowicz@abmspace.com
Secondary contact	Name	Robert Wojciechowski
	Email address	robert.wojciechowski@abmspace.com
Description	The Magma White rover can be used as a mobile science and measuring platform. Its main scientific functions are: taking soil samples, lifting and grabbing stones and acting as a platform for other experiments including L.I.F.E., which allows for identification of biomarker molecules (chlorophyllium and phycoerythrin) with a laser resonance signal.	
Photo		

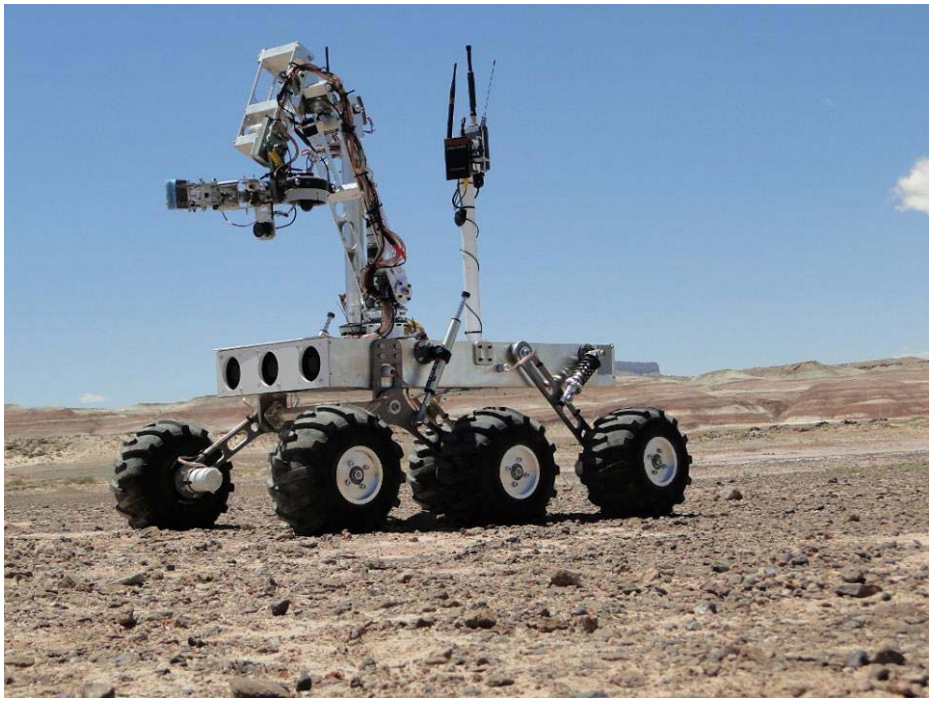
6.2. CAB-INTA

Hardware type	Mars Simulation Chamber	
Hardware Name	-	
Location	Valladolid, Spain	
Institution	Centro de Astrobiología (CAB-INTA)	
Primary contact	Name	Alejandro Catalá Espí
	Email address	alejandrocatala@gmail.com
Secondary contact	Name	Fernando Rull Pérez
	Email address	rull@fmc.uva.es
Description	The Mars Chamber aims to reproduce environmental conditions, to which samples will be exposed during an analysis by the Raman Laser Spectrometer (RLS). Samples are prepared and placed into the Analytical Laboratory Drawer (ALD) inside the ESA-lead ExoMars rover after extraction from Martian subsurface.	
Photo		

6.3. Comex

Hardware type	Suit	
Hardware Name	Gandolfi	
Location	Marseilles, France	
Institution	Comex Département Ingénierie en Milieux Extrêmes Centre d'Essais Hyperbares	
Primary contact	Name	Dr. Peter Weiss
	Email address	p.weiss@comex.fr
Secondary contact	Name	
	Email address	
	Phone number	
Description		
Photo		

6.4. Hyperion

Hardware type	Rover	
Hardware Name	Hyperion rover	
Location	Bialystok, Poland	
Institution	Technical University of Białystok	
Primary contact	Name	Michal Grzes
	Email address	michalgrzes.1@gmail.com
Description	Hyperion is a Mars rover prototype created by students of Technical University of Bialystok in order to compete in University Rover Challenge. Hyperion won this challenge in June 2013 with the highest score in the history of competition (493 points on 500 max). The rover is equipped with an articulated manipulator with 6 degrees of freedom, three cameras and a GPS system.	
Photo		

6.5. MAVRIC

Hardware type	Rover	
Hardware Name	MAVRIC rover	
Location	Ames, Iowa, USA	
Institution	Iowa State University	
Primary contact	Name	Matt Nelson
	Email address	mnelson@iastate.edu
Secondary contact	Name	Josh DeLarm
	Email address	jdelarm@iastate.edu
Description	MAVRIC is a simulated Mars rover designed by student engineers from Iowa State University. It is designed to traverse rough terrain and interact with its environment using an attached robotic arm.	
Photo		

6.6. Aouda.X

Hardware type	Spacesuit Simulator	
Hardware Name	Aouda.X	
Location	Innsbruck, Austria	
Institution	Austrian Space Forum Spacesuit lab	
Primary contact	Name	Gernot Groemer
	Email address	gernot.groemer@oewf.org
	Phone number	
Description	Aouda.X is a 45kg prototype for a research-grade spacesuit simulator developed by the Austrian Space Forum. It has been deployed during various field simulations ranging from southern spain to the Northern Sahara.	
Photo		

6.7. North Dakota

Hardware type	Suit	
Hardware Name	NDX-2 (and NDX-1)	
Location	Grand Forks, North Dakota, United States	
Institution	University of North Dakota	
Primary contact	Name	Pablo de León
	Email address	deleon@space.edu
Secondary contact	Name	Lindsay Anderson
	Email address	linds_ands@yahoo.com
	Phone number	
Description	The NDX-2 is a pressurized analog space suit prepared for usage during lunar simulations on Earth. This suit was designed in conjunction with the Pressurized Electric Rover to which NDX-2 will ultimately be externally attached.	
Photo 		

6.8. Part Time Scientists

Hardware type	Rover	
Hardware Name	Asimov	
Location	Berlin, Germany	
Institution	Part-Time-Scientists GmbH	
Primary contact	Name	Robert Boehme
	Email address	rb@ptscientists.com
Secondary contact	Name	Karsten Becker
	Email address	kb@ptscientists.com
Description		
Photo		

6.9. Puli

Hardware type	Rover	
Hardware Name	Puli Rover	
Location	Budapest (maybe Szeged), Hungary	
Institution	Team Puli Space, official Google Lunar XPRIZE Team	
Primary contact	Name	Dr. Tibor Pacher
	Email address	tibor.pacher@pulispace.com
Secondary contact	Name	Miklós Pathy
	Email address	mikos.pathy@pulispace.com
Description	Puli Space is the Hungarian team striving to create the smartest rover of its kind within the GLXP competition. The Puli rover is a small, 4-wheeled 10kg construction, capable of moving on rough terrain, up to 45^{o} slopes, in deep regolith (much finer grains than sand), as well as on rocky surfaces. Remotely supervised navigation is based on stereo cameras that record high quality pictures. Rover is equipped with thermal, current and voltage sensors.	
Photo		

7. Mission Control Center

7.1. Location and Infrastructure

The Mission Control Center was located at Sillufer 3a, 6020 Innsbruck, Austria.

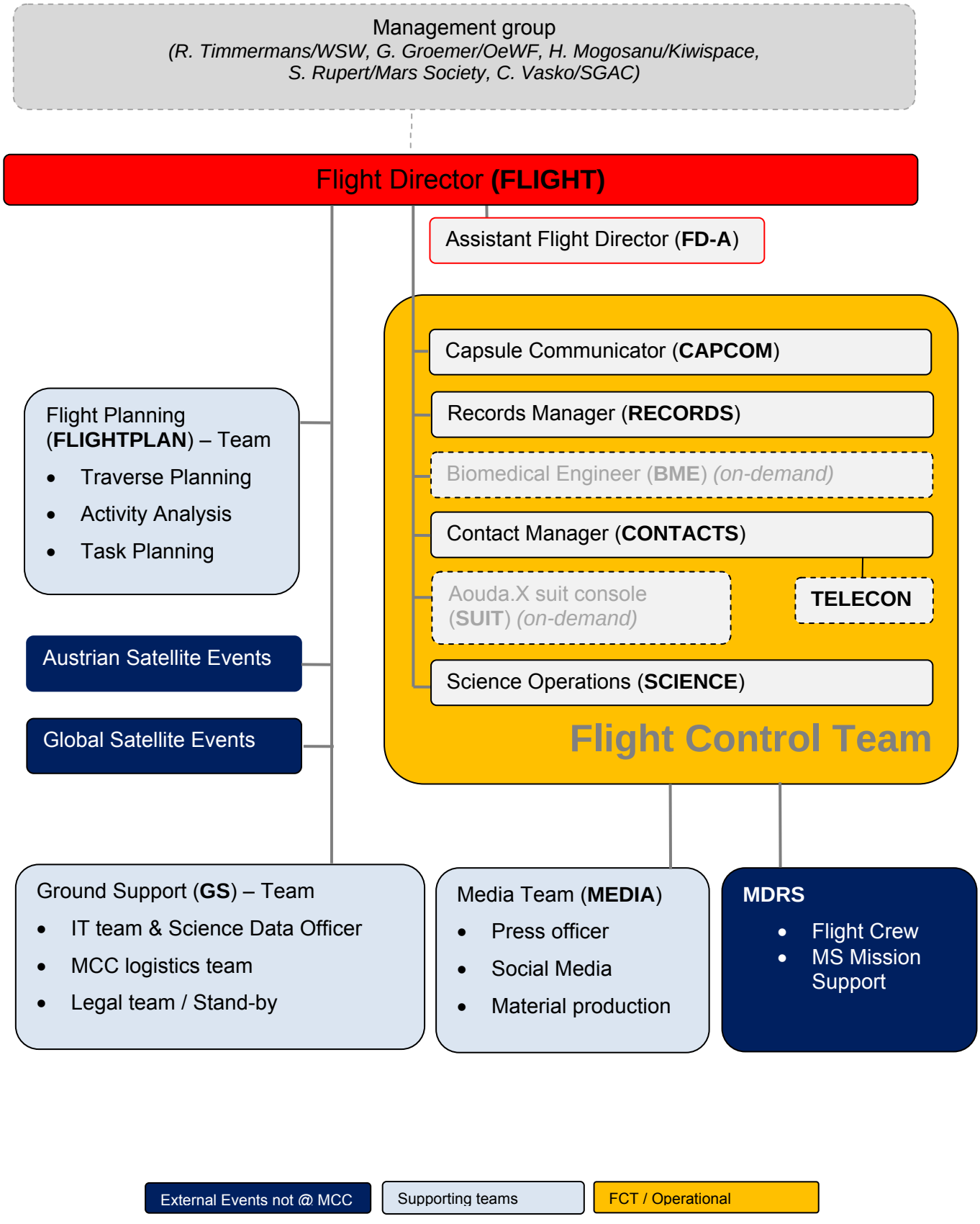
The MCC had a broadband connectivity providing 30 MBit/s download capacity, sponsored by UPC. The Science Data Archive was hosted on a set of OEWF servers at the MCC.

MCC Photos: OEWF/Paul Santek

7.2. MCC set-up

- **Flight Control Team Room:** The heart of the Mission Control Center was the Flight Control Team Room ("FCR"), where the Flight Director managed the flight controllers. A series of status displays visualized major telemetry data and the flight plan as well as the video feeds.
- **MEDIACOM:** This room housed the traditional and web-based media teams. This room was the gateway to the public, including managing media inquiries.
- **FLIGHTPLAN/RSS/SDO:** This room was the center of the scientific operations, where the data are being received, analyzed and interpreted. This input fed back into the flight planning team which was considering available resources and management priorities together with the scientific input to be merged into an Activity Plan.
- **Ground Support Logistics + IT:** The "gateway to the MCC": This room hosted the team managing the facility, ensuring the access control and handling logistics ranging from transportation to hygiene.
- **Entry point / registration desk / Offices**

7.3. MCC team organization chart



8. MDRS FIELD CREW

The Crew conducted analog flight operations of the MDRS Mission (including station maintenance) and science mission activities in „simulation“ („in-sim“) mode, emulating selected elements of a flight mission. Science experiments are conducted under supervision of the Remote Science Support team of the MCC. The crew is directed by the MCC/Innsbruck, their primary contact is the CAPCOM on duty; station-specific equipment is operated under the coordination of the Mars Society's Mission Support Team under the lead of Shannon Rupert/MS, through MCC/Innsbruck.

CREW

Jon Rask, Commander

Jon Rask is a Research Scientist in the Space Biosciences Division at NASA Ames Research Center. His current research focuses on human health effects of space flight and the exploration of the Moon and Mars. Jon has characterized the toxicity and abrasiveness of Apollo lunar dust specimens, and developed novel brick-like regolith biocomposite technologies made from lunar dust simulants. Jon Rask has also developed and tested life science hardware and experiments that flew aboard the Space Shuttle and the International Space Station. He has performed experiment operations aboard the NASA C9B parabolic aircraft. Jon has been involved in Mars analog research at the MDRS, in the Mojave desert, in the Empty Quarter Desert of the Middle East, in deserts of Western Australia, North Dakota, in the Arctic on Svalbard, and in Antarctica, where he has tested prototype space suit technology, and also operated the greenhouse at the Amundsen-Scott South Pole Station. Most recently, Jon has served as the PI for a human study aboard the NASA Ames Human Performance Centrifuge.

Haritina Mogosanu, First Officer

She is a life scientist with background in biology, chemistry, horticultural engineering, environmental management, communication, biosecurity and international security.

She currently works for the Ministry for Primary Industries (MPI) of New Zealand as a Biosecurity Risk Analyst being one of the designers of the Emerging Risks System, protecting New Zealand from biological risk. Haritina also lectures at the Carter Observatory,

Wellington. Passionate about life sciences, astrobiology, astronomy and culture, she participated in the Mars Desert Research Station (MDRS) analog exploration programme with crew 98 RoMars 2011 (First Officer), crew 118 KiwiMars 2012 (Commander), crew 123 TasMars 2013 (Mission Director) and is part of the MDRS Astronomy Outreach Crew.

Randall Dunning, Health and Safety Officer

Randall Dunning holds a MSc in physics from the Utah State University and has worked as a interpretive park ranger in Colorado and Utah. His medical training includes CPR/AED and Advanced First Aid Certified as well as an active license in Wilderness First Response. At the MDRS he is also a member of the Musk Observatory Astronomy Team.

Patricia Marie Smedley,

Born in Cape Canaveral, FL, Tricia's father worked at Kennedy Space Center and hence she has been around space science all her life. She served as President of the Brevard Astronomical Society for several years. During her time working for Badlands National Park as a Night Sky Ranger, she organized the first ever Badlands Astronomy Festival.

Her passion for preserving the night sky, organizing outreach events for space science organizations, and amateur astronomy has landed her on "Mars", as a member of the MDRS Astronomy Team. She served on her first crew in July, during the 2013 Summer Astronomy Refit Crew. She specializes in astronomy outreach and public relations. She is working on her undergraduate degree at Eastern Florida State College, majoring in Astronomy and Organizational Management.

Jean Hunter

Jean Hunter is an Associate Professor at Cornell University's Department of Biological and Environmental Engineering. Her research interests include food engineering and the use of fermentation and enzyme technologies to produce useful products from food and agricultural wastes. Most of her work during the last 10 years has focused space life support including testing and optimization of food systems for long term planetary missions, small scale processing of food materials and agricultural residues in bioregenerative life support systems, in-situ resource utilization, water recovery, and solid waste processing. She has been active at MDRS as a CapCom, a member of the Remote Science Team and lead investigator of the MDRS food study.

9. Flight plan

The planning was based upon an hourly roster for each field crew member and commentary fields for events. It is coordinated by FLIGHTPLAN and is ultimatively approved by the FD. The preliminary flight plan reflects the on-site activities.

The Flight Plan for WSW/MDRS consisted of three parts: The Mission Plan, the Activity Plan and the Traverse Plan.

- **Mission Plan**

  The Mission Plan is a rough pre-mission schedule including all field activities, in-sim as well as off-sim. It allocates certain activities to certain days of the mission without going into too much detail or allocating exact times. The Mission Plan serves as a basic structure for the later Activity Planning and is likely to evolve during the whole planning process

- **Activity Plan**

  The Activity Plan is a detailed schedule for all field activities including all necessary resources. The Activity Plan is created shortly before and during the mission for each day of the mission, allowing for changes and replanning events.

- **Traverse Plan**

  The Traverse Plan identifies the optimised traverses between two experiment locations regarding safety, efficiency, scientific interest and velocity.

Österreichisches Weltraum Forum

Postfach 76, A-1072 Wien ‖ Technikerstr. 21a, A-6020 Innsbruck

w w w . o e w f . o r g , i n f o @ o e w f . o r g

9.1. Schedule of Satellite events (excl. MDRS)

Friday, 4th October										
Time (CEST)		**07:00**	**08:00**	**09:00**	**10:00**	**11:00**	**12:00**	**13:00**	**14:00**	**15:00**
Time (UTC)		05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00
MCC Activities										
Flightplan			Morning Briefing	Development of the Daily Activity Package					Lunch break	DAP authorisation
else			Morning Briefing		10:30 Start of Press Conference		Mass Telecon	Interviews	Interviews	Interviews
TELECON			Morning Briefing	#01 Sri Lanka					Lunch break	
MCC Shift change			shift 1 start						Lunch break	Shift overlap
Satellites										

Time (CEST)	**16:00**	**17:00**	**18:00**	**19:00**	**20:00**	**21:00**	**22:00**	**23:00**	**00:00**	**01:00**
Time (UTC)	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
MCC Activities										
Flightplan	Activity Analysis			Dinner	Activity Analysis			Evening Briefing		
else				Dinner				Evening Briefing		
TELECON		#03 17:30 Sierra Expeditionary Learning School		Dinner				Evening Briefing		
MCC Shift change	Shift overlap			Dinner						

Saturday, 5th October										
Time (CEST)		**07:00**	**08:00**	**09:00**	**10:00**	**11:00**	**12:00**	**13:00**	**14:00**	**15:00**
Time (UTC)		05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00
MCC Activities										
Flightplan			Morning Briefing	Development of the Daily Activity Package					Lunch break	DAP authorisation
TELECON			Morning Briefing			#08 Devgun Gr.2			Lunch break	COMM-Check Klagenfurt
else			Morning Briefing						Lunch break	
MCC Shift change			shift 1 start						Lunch break	Shift overlap
Satellites										
Hyperion				#69 Team introduction	#04 client	#09 client			#12 Tweet-up (14:30)	
Puli					#05 Devgun Gr.1		#70 Team introduction		#14a tweetup (14:00)	#14b tweetup (15:00)
CAB-INTA					#06 tweet-up (10:30)	#10 Universitat Politècnica de València				15:30 #73 Team introduction
MAVRIC										
Aouda.X						#07 donning/tweetup	#11 tweetup	#13 Devgun Gr.3	#71 Team introduction	

Time (CEST)	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	01:00
Time (UTC)	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
Time (MDT) Utah	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00
MCC Activities										
Flightplan	Activity Analysis			Dinner	Activity Analysis			Evening Briefing		
TELECON			#18 Planetarium Klagenfurt	Dinner				Evening Briefing		
else				Dinner				Evening Briefing		
MCC Shift change	Shift overlap			Dinner				Evening Briefing		
Satellites										
Puli										
MRover	#15 client									
CAB-INTA			#19 museum							
MAVRIC	#16 client	#72 Team introduction			#22 Welios - museum	#23 museum				
PTS	#17 Landeck 16:30		#20 Planetarium Klagenfurt	#21 museum						

Sunday, 6th October

Time (CEST)		07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00
Time (UTC)		05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00
Time (MDT) Utah		23:00	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00
MCC Activities										
Flightplan			Morning Briefing	Development of the Daily Activity Package					Lunch break	DAP authorisation
TELECON			Morning Briefing			#25 Devgun Gr.5			Lunch break	
else			Morning Briefing						Lunch break	
MCC Shift change			shift 1 start						Lunch break	Shift overlap
Satellites										
Hyperion							#26 Devgun Gr.6		#28 client	
MRover									#29 Devgun Gr.7	
PTS					#24 Devgun Gr.4			#27 Sigaram Academy Of Excellence		

Time (CEST)	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	01:00
Time (UTC)	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
Time (MDT) Utah	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00
MCC Activities										
Flightplan	Activity Analysis			Dinner	Activity Analysis			Evening Briefing		
TELECON				Dinner				Evening Briefing		
else				Dinner				Evening Briefing		
MCC Shift change	Shift overlap			Dinner				Evening Briefing		
Satellites										
Hyperion										
MRover		#30 client			#74 Team introduction			#32 client		
PTS		#31 client								

Monday, 7th October

Time (CEST)		07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00
Time (UTC)		05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00
Time (MDT) Utah		23:00	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00
MCC Activities										
Flightplan			Morning Briefing	Development of the Daily Activity Package					Lunch break	DAP authorisation
TELECON			Morning Briefing	#75 VS Kaisermühlen		#34 VS 52solarCity			Lunch break	
else			Morning Briefing						Lunch break	
MCC Shift change			shift 1 start						Lunch break	Shift overlap
Satellites										
Hyperion					#33 client	#35 Avenue Primary School				

Time (CEST)	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	01:00
Time (UTC)	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
Time (MDT) Utah	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00
MDRS										
Jon Rask	Logs	Logs	Logs	Lunch	Logs	Logs	Logs	Evening Briefing	CDR Report	Dinner
Haritina Mogosanu	Change Detection	Change Detection	Sand Sampling	Lunch	D-TREX	D-TREX	D-TREX	Evening Briefing	EVA Report	Dinner
Jean Hunter	Change Detection	Change Detection	Sand Sampling	Lunch	SediChem	SediChem	SediChem	Evening Briefing	Journalist Report	Dinner
Jamie Guined	Change Detection	Change Detection	Sand Sampling	Lunch	D-TREX	D-TREX	D-TREX	Evening Briefing	Science Report	Dinner
Randall Dunning	Station maintenance (check out suits)	Station maintenance (check out suits)	Station maintenance/ #77 Al Akhawayn University in Ifrane	Lunch	Station maintenance/ outreach	Station maintenance/ outreach	Station maintenance/ outreach	Evening Briefing	Engineer Report	Dinner
Patricia Smeadley	Capcom	Capcom	Capcom	Lunch	Capcom	Capcom	Capcom	Evening Briefing	Greenhab Report	Dinner
MCC Activities										
Flightplan	Activity Analysis			Dinner	Activity Analysis			Evening Briefing		
TELECON		#36 Maumelle High School (USA)		Dinner				Evening Briefing		
else				Dinner				Evening Briefing		
MCC Shift change	Shift overlap			Dinner				Evening Briefing		
Satellites										
Hyperion										
PTS				#37 client	#38 Al Akhawayn University in Ifrane					
Comex	#76 Team introduction									

Tuesday, 8th October

Time (CEST)		07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00
Time (UTC)		05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00
Time (MDT) Utah		23:00	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00
MCC Activities										
Flightplan			Morning Briefing	Development of the Daily Activity Package					Lunch break	DAP authorisation
TELECON			Morning Briefing	#39 The British School of Ulaanbaatar	#40 Laddingford Primary School (UK)				14:30 #79 Khevenhüller Gymnasium Linz	
else			Morning Briefing						Lunch break	
MCC Shift change			shift 1 start						Lunch break	Shift overlap
Satellites										
MRover								#42 client		
MAGMA White						#41 Space Center of Excellence School (India)	#78 Team introduction	#43 client	#85 Press conference 14:15-14:30 (Groemer)	
Aouda.X									Donning	

Time (CEST)	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	01:00
Time (UTC)	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
Time (MDT) Utah	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00
MCC Activities										
Flightplan	Activity Analysis			Dinner	Activity Analysis			Evening Briefing		
TELECON				Dinner				Evening Briefing		
else		**Mass EVA**		Dinner				Evening Briefing		
MCC Shift change	Shift overlap			Dinner				Evening Briefing		
Satellites										
MRover						#49 client				
North Dakota		#44 MASS EVA	#80 Team introduction							
PTS				#47 client						
Aouda.X	Master Sample Photo shoot	#45 MASS EVA	#46 client	#48 client						

Wednesday, 9th October										
Time (CEST)		**07:00**	**08:00**	**09:00**	**10:00**	**11:00**	**12:00**	**13:00**	**14:00**	**15:00**
Time (UTC)		05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00
MCC Activities										
Flightplan			Morning Briefing	Development of the Daily Activity Package	Lunch break	DAP authorisation				
TELECON			Morning Briefing		#51 National Planetarium Malaysia		#84 Gymnasium Ort		Lunch break	
else			#82 Senior Secondary School India (8:30)						Lunch break	
MCC Shift change			shift 1 start						Lunch break	Shift overlap
Satellites										
Hyperion			#82 Senior Secondary School India (8:30)	#50 The British School of Ulaanbaatar	#52 high school Zielona Gora				#55 Castledrum National School (Ireland)	
RAL Space									#81 Team introduction	
Comex						#53 Lissette		#54 client		

Time (CEST)	**16:00**	**17:00**	**18:00**	**19:00**	**20:00**	**21:00**	**22:00**	**23:00**	**00:00**	**01:00**
Time (UTC)	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
MCC Activities										
Flightplan				Evening Briefing	Dinner					
TELECON			Astronomical Society of Skopje	Evening Briefing	Dinner					
else				Evening Briefing	"Say 'hi' to Juno" - Event					
MCC Shift change	Shift overlap			Evening Briefing	Dinner					
Satellites										
Hyperion										
RAL Space										
Comex										

Thursday, 10th October										
Time (CEST)		**07:00**	**08:00**	**09:00**	**10:00**	**11:00**	**12:00**	**13:00**	**14:00**	**15:00**
Time (UTC)		05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00
MCC Activities										
Flightplan			Morning Briefing							
TELECON			Morning Briefing					#60 Wootton Upper School	#61 VS 52solarCity back-up	#83 Privatgymnasium Liefering
else			Morning Briefing		school class visit		school class visit			
MCC Shift change			shift 1 start							Shift overlap
Satellites										
Hyperion				#56 client	#58 Graz International Bilingual School				#62 National Planetarium Malaysia	
MRover										
CAB-INTA				#57 British International School of Brussels			#59 client			
RAL Space									#63 back-up	

Time (CEST)	**16:00**	**17:00**	**18:00**	**19:00**	**20:00**	**21:00**	**22:00**	**23:00**	**00:00**	**01:00**
Time (UTC)	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
MCC Activities										
Flightplan				Evening Briefing	Dinner					
TELECON				Evening Briefing	Dinner					
else				Evening Briefing	Dinner					
MCC Shift change	Shift overlap			Evening Briefing	Dinner					
Satellites										
Hyperion										
MRover										
CAB-INTA	#64 client	#65 client								
RAL Space										

9.2 Activity Plan and Activity Analysis

The planning strategy for the World Space Week 2013 mission was a 1-day-in-advance planning strategy for the Daily Activity Package DAP. The DAP was done in the morning before the target day, got checked and authorised during the afternoon and uploaded to the crew and partners in the evening before the target day.

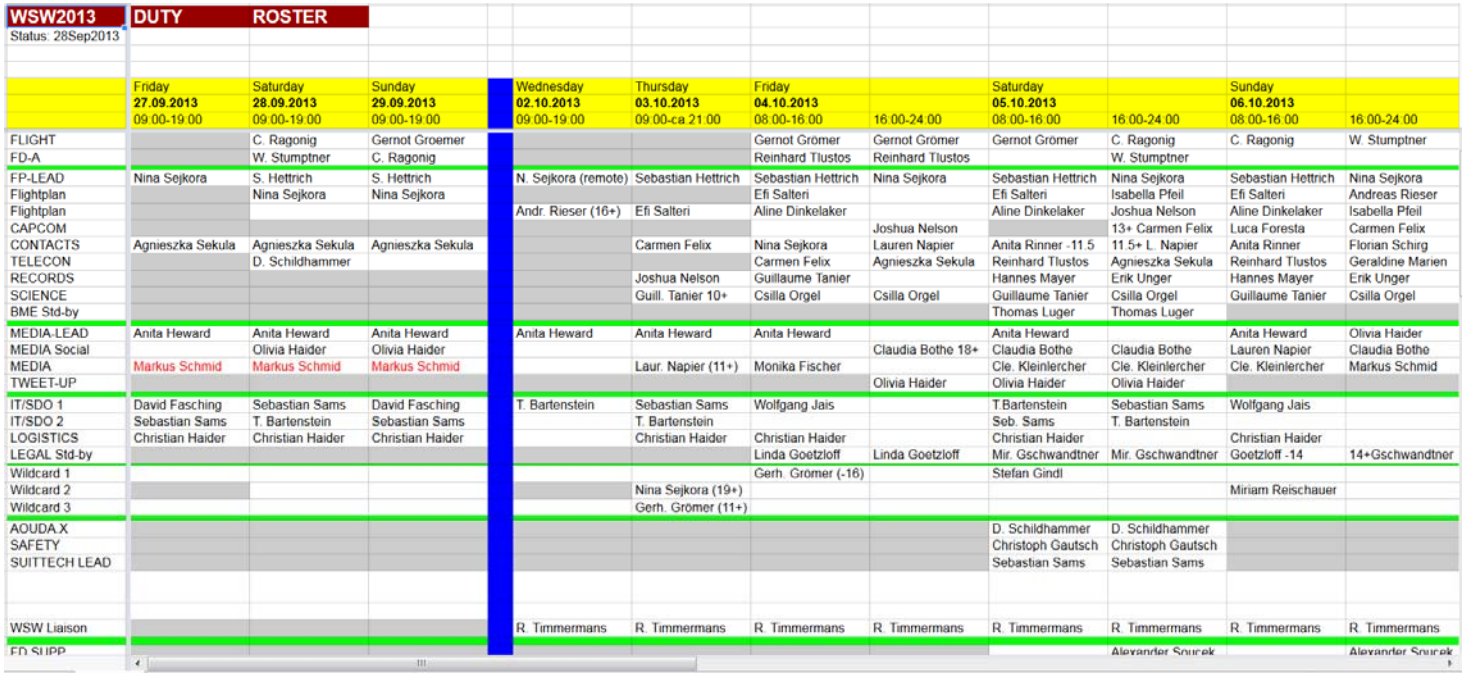
This is done as following; every morning the DAP for the next day was prepared i.e. taking into account the feedback and activity analysis as well as change requests. Then the Field Activity Plans FAPs were created based on the Mission Plan 2. There were two FAPs for the WSW mission. One on an hourly basis including all activities, satellites as well as MDRS events, and one specifically for the use at MDRS which were on a 15min Basis including all scientific and outreach activities connected with MDRS as well as maintenance and meal times. Once the FAP for the MDRS was established, the experiment location and traverses were to be planned i.e. a Traverse Plan was developed. This was done with Google Earth maps overlaid with danger maps and suitability maps (if available) where in cooperation with RSS the best experiment locations were identified.

Suitability maps were a mapping tool created by the MCC remote science team and the flight planners to identify traversable locations, risky areas and no-go zones. Then the optimal (safest, fastest, most scientifically interesting) traverse was drawn in the map to connect the experiment locations with the habitat. Especially the inclines were checked to not be too extreme. Distances and average times were calculated and noted in the DAP as well as the GPS coordinates. At last the additional information was added to the DAP.

This DAP was then submitted to the Flight Director FD for a final check and authorisation before it got sent out to the WSW participants in the evening before the target day. This left the afternoon for last adjustments, if necessary.

Another task of the Flight Planners was to conduct the Activity Analysis during the afternoon and evening. That means the data coming in from the MDRS and the satellite events (but mainly MDRS) were analysed regarding the duration of all planned activities, if they were successful, person in charge and place of conduction as well as the traverses. This was done in order to adjust further planning to the needs of the crew and to gain statistical data in order to evaluate the efficiency of a mission. It was therefore crucial that the crew took useful notes of their activities according to the Logging Procedures.

9.3. MCC Team Roster



WSW2013	DUTY	ROSTER										
Status: 28Sep2013												
	Friday	Saturday	Sunday	Wednesday	Thursday	Friday		Saturday		Sunday		
	27.09.2013	28.09.2013	29.09.2013	02.10.2013	03.10.2013	04.10.2013		05.10.2013		06.10.2013		
	09:00-19:00	09:00-19:00	09:00-19:00	09:00-19:00	09:00-ca.21:00	08:00-16:00	16:00-24:00	08:00-16:00	16:00-24:00	08:00-16:00	16:00-24:00	
FLIGHT		C. Ragonig	Gernot Groemer			Gernot Grömer	Gernot Grömer	Gernot Grömer	C. Ragonig	C. Ragonig	W. Stumptner	
FD-A		W. Stumptner	C. Ragonig			Reinhard Tlustos	Reinhard Tlustos		W. Stumptner			
FP-LEAD	Nina Sejkora	S. Hettrich	S. Hettrich	N. Sejkora (remote)	Sebastian Hettrich	Sebastian Hettrich	Nina Sejkora	Sebastian Hettrich	Nina Sejkora	Sebastian Hettrich	Nina Sejkora	
Flightplan		Nina Sejkora	Nina Sejkora			Efi Salteri		Efi Salteri	Isabella Pfeil	Efi Salteri	Andreas Rieser	
Flightplan				Andr. Rieser (16+)	Efi Salteri	Aline Dinkelaker		Aline Dinkelaker	Joshua Nelson	Aline Dinkelaker	Isabella Pfeil	
CAPCOM							Joshua Nelson		13+ Carmen Felix	Luca Foresta	Carmen Felix	
CONTACTS	Agnieszka Sekula	Agnieszka Sekula	Agnieszka Sekula		Carmen Felix	Nina Sejkora	Lauren Napier	Anita Rinner -11.5	11.5+ L. Napier	Anita Rinner	Florian Schirg	
TELECON		D. Schildhammer				Carmen Felix	Agnieszka Sekula	Reinhard Tlustos	Agnieszka Sekula	Reinhard Tlustos	Geraldine Marien	
RECORDS					Joshua Nelson	Guillaume Tanier		Hannes Mayer	Erik Unger	Hannes Mayer	Erik Unger	
SCIENCE					Guill. Tanier 10+	Csilla Orgel	Csilla Orgel	Guillaume Tanier	Csilla Orgel	Guillaume Tanier	Csilla Orgel	
BME Std-by								Thomas Luger	Thomas Luger			
MEDIA-LEAD	Anita Heward	Anita Heward	Anita Heward	Anita Heward	Anita Heward	Anita Heward		Anita Heward		Anita Heward	Olivia Haider	
MEDIA Social		Olivia Haider	Olivia Haider				Claudia Bothe 18+	Claudia Bothe	Claudia Bothe	Lauren Napier	Claudia Bothe	
MEDIA	Markus Schmid	Markus Schmid	Markus Schmid		Laur. Napier (11+)	Monika Fischer		Cle. Kleinlercher	Cle. Kleinlercher	Cle. Kleinlercher	Markus Schmid	
TWEET-UP							Olivia Haider	Olivia Haider	Olivia Haider			
IT/SDO 1	David Fasching	Sebastian Sams	David Fasching	T. Bartenstein	Sebastian Sams	Wolfgang Jais		T.Bartenstein	Sebastian Sams	Wolfgang Jais		
IT/SDO 2	Sebastian Sams	T. Bartenstein	Sebastian Sams		T. Bartenstein			Seb. Sams	T. Bartenstein			
LOGISTICS	Christian Haider	Christian Haider	Christian Haider		Christian Haider	Christian Haider		Christian Haider		Christian Haider		
LEGAL Std-by						Linda Goetzloff	Linda Goetzloff	Mir. Gschwandtner	Mir. Gschwandtner	Goetzloff -14	14+Gschwandtner	
Wildcard 1						Gerh. Grömer (-16)		Stefan Gindl				
Wildcard 2					Nina Sejkora (19+)					Miriam Reischauer		
Wildcard 3					Gerh. Grömer (11+)							
AOUDA.X								D. Schildhammer	D. Schildhammer			
SAFETY								Christoph Gautsch	Christoph Gautsch			
SUITTECH LEAD								Sebastian Sams	Sebastian Sams			
WSW Liaison				R. Timmermans	R. Timmermans	R. Timmermans	R. Timmermans	R. Timmermans	R. Timmermans	R. Timmermans	R. Timmermans	
FD SUPP									Alexander Soucek		Alexander Soucek	

	Monday		Tuesday		Wednesday		Thursday		Friday
	07.10.2013		08.10.2013		09.10.2013		10.10.2013		11.10.2013
	08:00-16:00	16:00-24:00	08:00-16:00	16:00-24:00	08:00-16:00	16:00-24:00	08:00-16:00	16:00-24:00	08:00-16:00
FLIGHT	Willibald Stumptner	Norbert Frischauf	W. Stumptner	Norbert Frischauf	Reinhard Tlustos	Willibald Stumptner	Reinhard Tlustos	Willibald Stumptner	G. Groemer / 11:00
FD-A				Reinhard Tlustos					W. Stumptner
FP-LEAD	Sebastian Hettrich		Sebastian Hettrich						
Flightplan	Efi Salteri								
Flightplan	Isabella Pfeil	Andreas Rieser							
CAPCOM		Luca Foresta		Carmen Felix					
CONTACTS	Joshua Nelson	Florian Schirg	Agnieszka Sekula	Florian Schirg	Joshua Nelson	Andreas Rieser	Isabella Pfeil		
TELECON	Agnieszka Sekula	Geraldine Marien	Joshua Nelson	Geraldine Marien	Agnieszka Sekula	Florian Schirg	Agnieszka Sekula		
RECORDS	Guillaume Tanier	Erik Unger	Guillaume Tanier	Andreas Rieser	Geraldine Marien		Efi Salteri	Erik Unger	
SCIENCE				Csilla Orgel					
BME Std-by									
MEDIA-LEAD	Anita Heward		Anita Heward		Anita Heward		Anita Heward		
MEDIA Social	Cle. Kleinlercher	Claudia Bothe	Cle. Kleinlercher	Claudia Bothe	Claudia Bothe	Carmen Felix	Carmen Felix		Carmen Felix
MEDIA	Abdelf. Mostafa	Markus Schmid	Abdelf. Mostafa	Markus Schmid		Markus Schmid			
TWEET-UP									
IT/SDO 1	Wolfgang Jais				Wolfgang Jais		Wolfgang Jais		Wolfgang Jais
IT/SDO 2									
LOGISTICS			Wolfgang Jais		Christian Haider		Christian Haider		Christian Haider
LEGAL Std-by	Linda Goetzloff	Linda Goetzloff	Mir. Gschwandtner	Mir. Gschwandtner	Linda Goetzloff	Linda Goetzloff	Mir. Gschwandtner	Mir. Gschwandtner	
Wildcard 1			Efi Salteri		Sebastian Hettrich				Efi Salteri
Wildcard 2	Miriam Reischauer				Efi Salteri				Sebastian Hettrich
Wildcard 3	Abdelf. Mostafa				Isabella Pfeil				
AOUDA.X			Luca Foresta	Luca Foresta					
SAFETY			Daniel Schildham.	Daniel Schildham.					
SUITTECH LEAD			Gernot Grömer	Gernot Grömer					
			M. Reischauer(CAM)						
			Isabella Pfeil						
WSW Liaison	R. Timmermans	R. Timmermans	R. Timmermans	R. Timmermans	R. Timmermans	R. Timmermans	R. Timmermans	R. Timmermans	
FD SUPP		Alexander Soucek	Alexander Soucek						

10. Education Activities

10.1. Education products

1) World Space Week Association Education portal

World Space Week Association traditionally provided resources for teachers in form of education materials. At www.worlspaceweek.org under the Education tab there was an array of guides and web links to other space-related education institutions world-wide.

The association was featuring the Heinlein teacher guide, for space education, currently available in seven languages (Czech, English, Italian, Japanese, Korean, Malaysian and Spanish), with more than 40 pages of easy-to-do classroom activities .

WSWA is also collected supplementary education resources links that are featured under the Education tab.

http://www.worldspaceweek.org/wsw/index.php?option=com_content&view=article&id=6&Itemid=5

2) Teleconferences

The main outreach activity during the World Space Week focussed on enabling students and wide public to take part in all the events we organise. This will be done via teleconferences in real time with the World Space Week Mission Control Center, Mars Desert Research Station Crew and all the other WSW Mars 2013 partners world wide.

2.1) Classroom teleconferences with the Mission Control Center (MCC)

The WSW MCC was operated between 08:00-24:00 CEST everyday during the World Space Week. We had flight controllers and staff experienced in interacting with students and children who were eager to meet classes virtually during e.g. a skype telecon. They were talking about space exploration and –most importantly- were very open for questions about space to the audience.

This easy-to-arrange opportunity lasted typically 30-60 min in order to accommodate it in the class schedule. Languages covered were English, German, Polish and Spanish. 70 teleconference 1-hour

slots were offered on a first-come-first-serve basis.

2.2)Teleconferences with the crew stationed at the Mars Desert Research Station in Utah

One of the highlights for this interaction are live-links to the Mars Desert Research Station in Utah: The five-person crew of analog astronauts emulated aspects of a Mars mission, taking samples, reporting on geological observations, working in spacesuit simulators etc.

They participated in virtual classroom discussions or Google Hangouts etc.

2.3) Teleconferences with partner events worldwide

We had partnered with a dozen research institutions worldwide who were showcasing their exploration activities. These include teams developing simulation Mars rover, Mars spacesuit prototypes or laboratory facilities. They were encouraged to do either one of these three interactions:

- watching the hardware in action (or, guided tours through their labs), with the opportunity to ask questions about their work
- ability to direct the hardware (e.g. asking the rover control team to take a sample or make a 360° panorama snapshot of their proving ground)
- permission to actually control the hardware via the Internet: e.g. navigating a real Mars analog rover in a Mars-like setting.

3) Earth Master Sample – Rock sampling for future explorers

This is a world's first event for which we had the extraordinary participation of the famous jeweler maker, the Swarovski Crystals company. The public sent rock samples from their own area to Mission Control, which then combined them all with a Mars meteorite. The combined samples will be transformed into crystals by the famous jewelry company Swarovski, and redistributed back to the world.

Taking surface samples is traditionally the first and most common activity undertaken by explorers throughout history. This will also happen once we send humans to Mars.

Following a very simple protocol – modeled after the actual sampling procedures during professional Mars simulations – we invite students and space enthusiasts worldwide to obtain their own rock sample in their location.

The rock samples obtained world wide by the public were sent to the MCC Innsbruck, together with the geographical coordinates and a picture of the sample site: be it just outside your classroom or a local rock quarry. The OeWF registered and collect these samples and combined them together into one single “Earth Master Sample”.

Swarovski Crystals agreed to manufacture high-quality polished crystals out of the Master sample.

This sample will be redistributed to space flight institutions and decision-makers to demonstrate a global interest in space exploration.

11. Media activities

4 October	Launch day: Broadcast information about launch, transfer, landing and first exploration of site etc. (blogs, videos and social media). Celebrate landing of first person(s) on Mars!
05Oct	Tweetup @ MCC/Innsbruck
5-9 October	Check detailed daily calendar of media visits, plan video and photo production, write blogs and post on all social media channels, execute EVA missions in line with media schedule, organize 1 – 3 daily hangouts of Skype calls with WSW events/school classes from both sites
11-12 October	Post production of video and photography. File mission reports
14/15 October	Press release with summary of campaign

Team

PR Team – Anita Heward (Europlanet), Olivia Haider (OeWF) and Monika Fischer (OeWF)

The PR team prepared press packs, press releases, investigate potential media partnerships, respond to media enquiries and manage the press office at the Mission Control Centre during WSW 2013.

Digital and Visual Media Coordinator – Markus Schmid

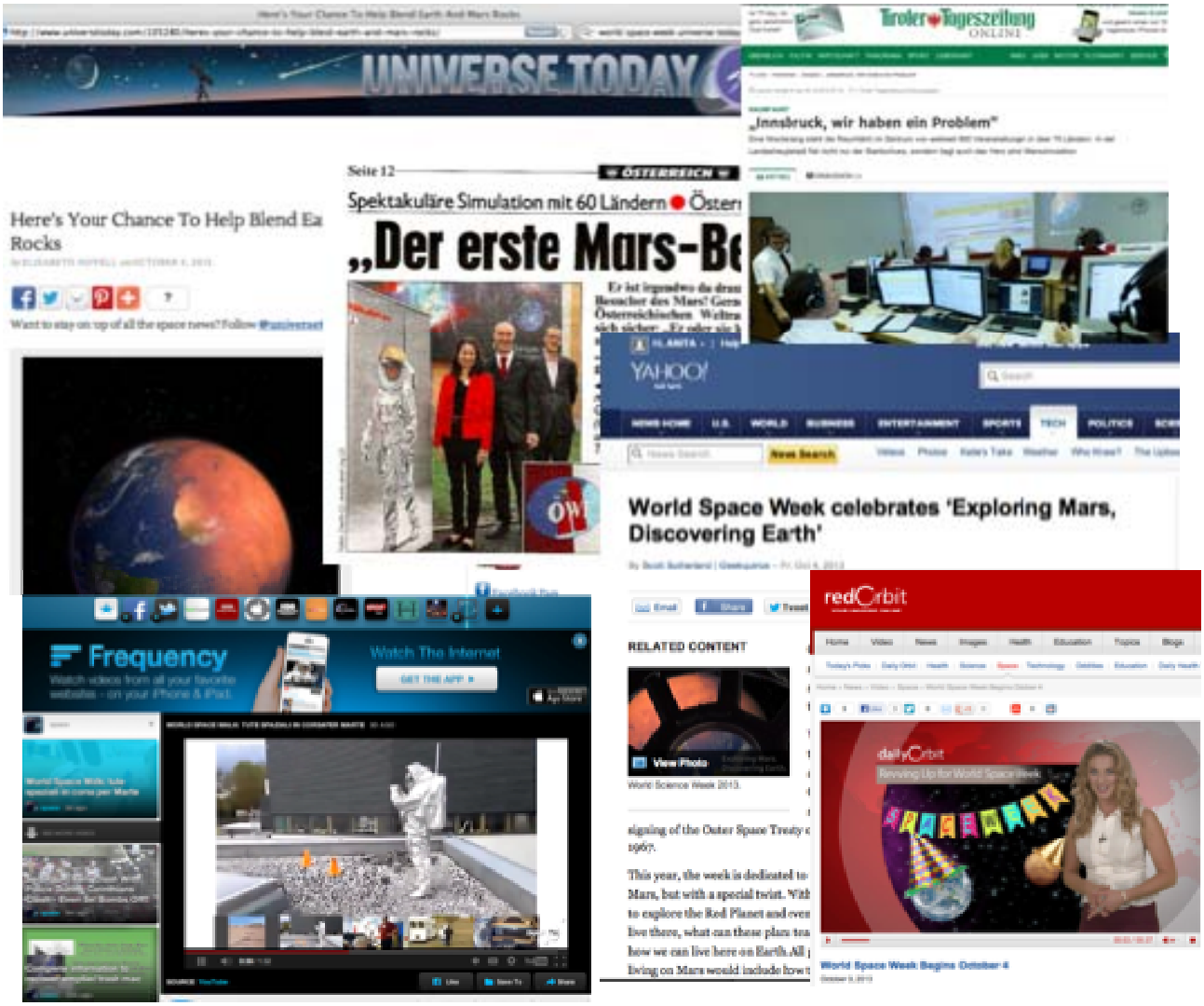
The Digital and Visual Media Coordinator was responsible for producing broadcast-quality imagery and video

Social Media Team – Claudia Bothe

The Social Media Coordinator/Team was responsible for building awareness of WSW 2013 through social media channels.

There was a TweetUp on 05Oct2013 at MCC/Innsbruck, allowing about a dozen high-profile Twitter-followers to experience the MCC first-hand.

11.1. Austrian and International Media Activities



Press conferences

On 27th August, a press conference was held in Vienna to announce the 'Exploring Mars, Discovering Earth' project. This resulted stories issued by the APA and nearly full-page articles in Die Krone and Der Standard.

A second press conference was held at the Austrian Space Forum's Spacesuit Laboratory. An introduction was followed by a panel discussion on the scientific background of 'Exploring Mars, Discovering Earth' with a panel comprised of Remco Timmermans, Executive Director of World Space Week, Franz Viehbock, Austria's first astronaut, Olga Prieto Ballesteros of the Centre de Astrobiologia in Spain (geologist and Mars analog researcher) and Dr Suzanne Schwenger from the Open University in the UK (member of the Mars Curiosity Rover's science team). This was attended by journalists from 5 press organisations, including from the Austrian Press Association, Tiroler Tageszeitung, Radio Österreich 1 and Wiener Zeitung.

11.2. Press Releases

Press releases were issued during the run-up and during world space week itself: a media invitation and a reminder before the meeting, the announcement of the 'Earth Master Sample' and a report on the World Space Walk. The releases were issued via the Europlanet Media list (~400 journalists and press organisations worldwide including forwarding services e.g. the AAS press list and through the OeWF media list. The releases were also posted on the AlphaGalileo Media subscription service, with alerts sent to between 2181-4117 subscribers (depending on tags assigned and relevancy) and all received more than 100 hits from journalists. The releases were all picked up by at least one major news service (RedOrbit, PhysOrg, Universe Today) that is syndicated to newsfeeds for astronomy and space sites, blogs and other webpages, reaching around 100 further outlets. At this point (15 October) it is too early to give a final summary of the media coverage. The press office has been contacted by journalists at Weather.com (about what we can learn about the Earth's atmosphere from studying Mars), BBC Focus Magazine (about Mars analog research) and New Scientist magazine (about spacesuit development) with requests for more information. Contacts were sent to each, and further articles may be forthcoming down the line.

Supporting Materials

To provide background information on events for the 'Exploring Mars, Discovering Earth' Campaign, the MediaCom team provided a 25-page press kit, as well as a WSW 2013 micro-site embedded within the OeWF site. This site comprised:

- A mission dashboard, providing quick links to all the content (Daily Highlights, Picture of the Day, links for watching live, Blog posts, information about partners and key projects)
- Details of Mars analog partners and the experiments that they would be demonstrating during World Space Week, including biographies of the MDRS crew and the MDRS science experiments.
- 'Earth Master Sample' homepage, with information about the campaign, instructions for taking a sample and press information
- Information on the 'World Space Walk' 2013

Daily activities during World Space Week

In addition to preparing press releases, the MediaCom team uploaded a Picture of the Day (PotD) and blog posts each day during World Space Week. The PotD were selected to demonstrate the range of activities comprising the 'Exploring Mars, Discovering Earth' campaign.

Friday 4 October

PotD:

- In the heart of the Mission Control Center (MCC) in Innsbruck, Austria - The so-called Flight Control Room is the main room in the MCC.

Blog Posts

- Earth Master Sample – Rock sampling for future

Saturday 5 October

PotD:

- Setting up the schedule for the next days with the beautiful fog-shrouded mountain area of Innsbruck in the background

Blog Posts:

- Mars Simulation Chamber, CAB-INTA, Spain
- WSW 2013 Mission to Mars: MDRS Commander's Report Day 1 (4 Oct)

Sunday 6 October

PotD:

- Air-lock inside MDRS (Mars Desert Research Station)

Blog Posts

- Interview with MDRS First Officer, Haritina Mogosanu
- WSW 2013 Mission to Mars: MDRS Commander's Report Day 2 (5 Oct)

Monday 7 October

PotD:

- The Flight Control Room is the hub of our World Space Week Mission Control Centre. In this photo you can see our own Reinhard Tlustos video conferencing with a school event in India.

Blog Posts:

- WSW 2013 Mission to Mars: MDRS Commander's Report Day 3 (6 Oct)
- In isolation on 'Mars'… and the crowd in the Mission Control Centre!
- Short review of saturdays 2nd MarsTweetup

Tuesday 8 October

PotD:

- The Mars Desert Research Station is located in the desert of Utah at the San Rafel Swell. Crew members took a great photo of the landscape around the habitat…

Blog Posts:

- World Space Walk 2013
- It can be a challenge working with spacesuit gloves: WSW Mission to Mars Cartoon Day 2
- WSW 2013 Mission to Mars: MDRS Acting Commander's Report Day 4 (7 Oct)
- We've had six visitors today… WSW 2013 Mission to Mars cartoon Day 3

Wednesday 9 October

PotD

- Yesterday the World Space Walk took place. Four analog space suit teams around the world, all coordinated from one mission control and working simultaneously on the same experiments.

Blog Posts:

- Aouda.X collects a rock for Earth Master Sample!
- Concretions on Mars WSW2013 Mission to Mars cartoon Day 4

Thursday 10 October

Blog Posts:

- WSW 2013 Mission to Mars Acting Commander's Report Final Day (8 Oct)
- World Space Walk 2013 – A Simultaneous Success!

Multimedia

Podcasts

Podcasts were compiled in German and English by Clemens Kleinlercher.

Letters from the Future Episode 5 can be found at: http://podcast.OeWF.org/OeWF005-world-space-week/

Videos

Daily videos in English (with Spanish subtitles) and Spanish were produced by Carmen Felix:

- http://www.youtube.com/watch?v=QdcjsVjWxjQ&feature=youtu.be
- http://www.youtube.com/watch?v=xNFsmn8XxzE&feature=youtu.be
- http://www.youtube.com/watch?v=pykOmJy3b-Q
- http://www.youtube.com/watch?v=TyFUvsDv6T8

All the Google Hangouts with between the Mars Analog partners and schools can be found at:

- https://plus.google.com/102641971580033536955/posts

Markus Schmidt compiled an 11 min 15 sec 'Best of World Space Week' showreel:

https://www.youtube.com/watch?v=_MoVgyX9pps

Appendix: Coverage listings (as of 15 October 2013).

Austrian Media Coverage

28/08/2013	Der Standart	Ein Woodstock für die Welt	http://derstandard.at/1376534820023/Ein-Woodstock-fu
28/08/2013	Oe1.ORF.at	World Space Week 2013: I	http://oe1.orf.at/programm/347184
28/08/2013	APA.at	Beinahe-Unfall im All: Was	http://www.science.apa.at/rubrik/natur_und_technik/Bei
28/08/2013	Die Presse	Beinahe-Unfall im All: Was	http://diepresse.com/home/panorama/raumfahrt/14457
28/08/2013	Die Krone	Der erste Mars-Besucher le	http://www.genios.de/presse-archiv/artikel/KRON/2013
04/10/2013	Der Standard	Die "World Space Week 20	http://derstandard.at/1379293075888/Die-World-Space
04/10/2013	termindienst	Start der World Space Wee	http://termindienst.pressetext.com/eventdetails/114662
04/10/2013	Wiener Zeitung	Startschuss für "World Spa	http://www.wienerzeitung.at/themen_channel/wissen/fo
04/10/2013	Futurezone.at	Startschuss für "World Spa	http://futurezone.at/science/startschuss-fuer-world-spa
04/10/2013	GÖDEL EDV.	Startschuss für "World Spa	http://www.goedel.at/it-news/Einträge/7311-startschuss
05/10/2013	Tiroler Tageszeitung	„Innsbruck, wir haben ein F	http://www.tt.com/panorama/7266462-91/innsbruck-wir
27/09/2013	STIMME RUSSLAN	Weltraumfahrtwoche findet	http://german.ruvr.ru/radio_broadcast/62074985/24443

International Media Coverage

27/08/2013	Irish Astronomical As	WORLD SPACE WEEK: W	http://irishastro.blogspot.com/2013/08/iaa-talk-spa-nova
27/08/2013	NanoWerk	World Space Week 2013 'E	http://www.nanowerk.com/news2/space/newsid=31938
28/08/2013	Astrowatch.net	Explore Mars, Discover Ea	http://www.astrowatch.net/2013/08/explore-mars-disco
27/08/2013	SpaceRef	Media Invited to 'Exploring	http://spaceref.com/news/viewpr.html?pid=41432
27/08/2013	Portal to the Univers		http://www.portaltotheuniverse.org/blogs/posts/view/281569/
23/09/2013	LEGO	Blast off to Mars with World Space Week!	
27/09/2013	Teacherlink	Celebrate World Space We	http://teacherlinkyetc.blogspot.com/2013/09/celebrate-\
02/10/2013	RedOrbit	World Space Week Kicks o	http://www.redorbit.com/news/space/1112964544/world
03/10/2013	Daily Orbit	World Space Week Begins	http://www.redorbit.com/news/video/space_2/11129659
04/10/2013	Yahoo News / Geek	World Space Week celebra	http://news.yahoo.com/blogs/geekquinox/world-space-\
02/10/2013	Compute Scotland	Engineer space cubsat hitc	http://www.computescotland.com/gaberlunzie-141.php
04/10/2013	BeforeitsNews	World Space Week celebra	http://beforeitsnews.com/space/2013/10/world-space-w
04/10/2013	Pakistan.com.pk	World Space Week celebra	http://pakistan.com.pk/2013/10/04/world-space-week-c
04/10/2013	The Big Think	What You Need to Know fo	http://bigthink.com/think-tank/what-you-need-to-know-f
04/10/2013	GeoJames Blog	WORLD SPACE WEEK 20	http://geojamesblog.wordpress.com/2013/10/04/world-s
02/10/2013	One Page News	World Space Week Kicks o	http://www.onenewspage.com/news.php?nid=4871119
02/10/2013	NewsSX	World Space Week Kicks o	http://www.newsxs.com/en/go/13880426/RedOrbit_Spa
04/10/2013	Frequency.com	Celebrating World Space W	http://www.frequency.com/video/celebrating-space-wee
04/10/2013	Planete Mars	La semaine mondiale de l'e	http://www.planete-mars.com/la-semaine-mondiale-de-
04/10/2013	Białostock Online	Białostocki łazik bierze udz	http://www.bialystokonline.pl/bialostocki-lazik-bierze-ud
04/10/2013	Akadera	Kosmiczny tydzień Hyperio	http://akadera.bialystok.pl/2013/10/08/kosmiczny-tydzie
04/10/2013	Universe Today	Here's Your Chance To Hel	http://www.universetoday.com/105280/heres-your-chan
04/10/2013	MMG Daily	Send in a rock and bring tw	http://www.mmgdaily.org/stemxcon/1370165271#!scien
04/10/2013	Swarovski Blog	Swarovski joins Austrian Sp	http://blog.swarovski-elements.com/en/swarovski-joins-
04/10/2013	Beforeitsnews	Here's Your Chance To Hel	http://beforeitsnews.com/space/2013/10/heres-your-cha
05/10/2013	Features	Here's Your Chance To Hel	http://features.rr.com/article/0eie91k7ZY2zB?q=Madrid
07/10/2013	i4u.com	Here's Your Chance To Hel	http://www.i4u.com/2013/10/swarovski/space-and-earth
04/10/2013	Malaysia Sun	Here's Your Chance To Hel	http://www.malaysiasun.com/index.php/sid/217518626/
04/10/2013	RSS Pump News	Here's Your Chance To Hel	http://space-exploration-analog.rsspump.com/?key=20
04/10/2013	West Rand Astronon	Here's Your Chance To Hel	http://www.wrac.org.za/home/index.php?option=com_c
04/10/2013	Urania	Here's Your Chance To Hel	http://urania.udea.edu.co/sitios/astronomia-2.0/astrone

04/10/2013	Alltop.com	Here's Your Chance To Hel	http://space.alltop.com/
10/10/2013	Feeddistiller	Here's Your Chance To Hel	http://www.feeddistiller.com/blogs/Exobiology/feed.html
04/10/2013	fti blog	Here's Your Chance To Hel	http://blog.fti-remixed.at/
04/10/2013	njastro	Here's Your Chance To Hel	http://njastro.org/agx/aggregator/sources/7
04/10/2013	Planetjon	Here's Your Chance To Hel	http://www.planetjon.net/
04/10/2013	Moon.org	Here's Your Chance To Hel	http://www.moon.org/
04/10/2013	Nature Universe Pho	Here's Your Chance To Hel	http://nature-universe-photography.blogspot.co.at/2013
04/10/2013	strudel.org	Here's Your Chance To Hel	http://www.strudel.org.uk/spacebuzz/t/mars/
04/10/2013	Sportballa	Here's Your Chance To Hel	http://www.sportballa.com/2013/10/swarovski/master-w
04/10/2013	OriginalSignal	Here's Your Chance To Hel	http://science.originalsignal.com/
04/10/2013	Digital learning foun	Here's Your Chance To Hel	http://www.digitallearningfoundation.org/aggregator/sou
04/10/2013	read3r.net	Here's Your Chance To Hel	http://read3r.net/feed/b7jUUelQ/
04/10/2013	Spaceweatherforeca	Here's Your Chance To Hel	http://www.spaceweatherforecast.ca/index.php/univers
04/10/2013	Birmingham Astrono	Here's Your Chance To Hel	http://www.bas-astro.com/index.php?option=com_user
04/10/2013	The Space Report	Here's Your Chance To Hel	http://www.thespacereport.com/
04/10/2013	National Schools Ob	Here's Your Chance To Hel	http://www.schoolsobservatory.org.uk/aggregator/
06/10/2013	GeoJames	World Space Week 2013: E	https://geojamesblog.wordpress.com/2013/10/06/world
04/10/2013	FutureNews Networl	Here's Your Chance To Hel	http://www.futurenewsnetwork.com/index.php?option=c
10/10/2013	All Things Aero	Celebrate World Space We	http://allthingsaero.com/space/hobby-space/article-cele
10/10/2013	Space Safety Magaz	A chance to blend Mars an	http://www.spacesafetymagazine.com/2013/10/10/char
11/10/2013	APN News	SPACE Celebrated World S	http://www.apnnews.com/2013/10/11/space-celebrated
12/10/2013	Astronomers Withou	Help Collect an Earth Mast	http://astronomerswithoutborders.org/news/latest-news
12/10/2013	Tycho Brache Obser	Help Collect an Earth Mast	http://www.tbobs.se/
09/10/2013	NUCLIO	Earth Master Sample - Env	http://nuclio.org/blog/a-terra-no-universo/
04/10/2013	Der Orion	World Space Week 2013	http://www.der-orion.com/index.php?option=com_conte
05/10/2013	starspace.lv	Samaisīt Zemi un Marsu	http://www.starspace.lv/lv/citas-zinas/samaisit-zemi-un-
04/10/2013	Mars Exploration Ne	Here's Your Chance To Hel	tp://marsexplorernews.com/www__Duniversetoday__D
06/10/2013	Universe Today Goo	Here's Your Chance To Hel	https://plus.google.com/+universetoday/posts/8GgrwJc
10/10/2013	RedOrbit	World Space Walk 2013: S	http://www.redorbit.com/news/space/1112971782/world
11/10/2013	PhysOrg	World Space Walk 2013: Tl	http://phys.org/news/2013-10-world-space-mars-analog
11/10/2013	The InnoPlexIon	World Space Walk 2013: Tl	https://www.theinnoplex.com/news/newssub/world-spa
11/10/2013	UND	UND NDX spacesuit team :	http://aerospace.und.edu/news/2013/10/ndx-space-suit
11/10/2013	Sea & Sky News	World Space Walk 2013: Tl	http://www.seasky.org/news/space-news-exploration.ht
10/10/2013	Bartle Doo	World Space Walk 2013: Tl	http://bd.summit.net/articles/2013/10/11/world-space-w
10/10/2013	One Page News	World Space Walk 2013: Tl	http://www.onenewspage.us/n/Science/74w2qtgvp/Wor
10/10/2013	INAF Media	World Space Walk: tute spa	http://gallery.media.inaf.it/main.php/v/video/servizi/2013
10/10/2013	NewsXS	World Space Walk 2013: Tl	http://www.newsxs.com/en/go/13973136/RedOrbit_Spa
10/10/2013	Frequency.com	World Space Walk: tute spa	http://www.frequency.com/video/world-space-walk-tute-
11/10/2013	supernetvideo.com	World Space Walk 2013	http://www.supernetvideo.com/youtube-space~OroyDw
10/10/2013	NewsNow	World Space Walk 2013: Tl	http://www.newsnow.co.uk/h/World+News/Europe/Wes
10/10/2013	European Physical S	World Space Walk 2013: Tl	http://www.eps.org/news/142259/
11/10/2013	Reddit	World Space Walk 2013: Tl	http://en.reddit.com/r/space/?count=50&after=t3_1o5k8
11/10/2013	The Edge	World Space Walk 2013: Tl	http://mabsj2.blogspot.co.uk/2013/10/physorg-newslett
10/10/2013	NewsLookUp	World Space Walk 2013: Tl	http://www.newslookup.com/US/
10/10/2013	Before Its News	World Space Walk 2013: Tl	http://beforeitsnews.com/space/2013/10/world-space-w
10/10/2013	esciencenews	World Space Walk 2013: Tl	ttp://esciencenews.com/sources/physorg/2013/10/11/w

10/10/2013	UnFox News	World Space Walk 2013: Tl	http://unfoxnews.com/news/world-space-walk-2013-thr
10/10/2013	Newsfiber	World Space Walk 2013: Tl	http://www.newsfiber.com/p/s/h?v=E14%2FzdVIv75Q%
10/10/2013	SiloBreaker	World Space Walk 2013: Tl	http://news.silobreaker.com/world-space-walk-2013-sin
10/10/2013	HotBlur	World Space Walk 2013: Tl	http://hotblur.com/!/News/world-space-walk-2013-simul
11/10/2013	Noodls.com	UND NDX spacesuit team :	http://www.noodls.com/view/7D3709DF6C771B5C9412
11/10/2013	НОВОСТИ НАУКИ	Всемирная космическая г	http://www.projectaurora.ru/3410-world-space-walk-201
11/10/2013	Politics Balla	World Space Walk 2013: Tl	http://www.politicsballa.com/category/astronomy-77
11/10/2013	Lenni's Place	World Space Walk 2013	http://lenniholywood.wordpress.com/2013/10/13/world-
11/10/2013	SiloBreaker	UND NDX spacesuit team :	http://news.silobreaker.com/und-ndx-spacesuit-team-sh
11/10/2013	WatchdogDigest	World Space Walk 2013: Tl	http://watchdogdigest.com/psychology-news/
11/10/2013	Verkeers Wereld	World Space Walk 2013: Tl	ttp://verkeerswereld.nl/technologie/world-space-walk-2(
12/10/2013	Science News Onlin	Three Mars Analogue Spac	http://www.sciencenewsline.com/articles/20131012163
12/10/2013	Technobahn	Three Mars Analogue Spac	http://www.technobahn.com/articles/201310121636900
14/10/2013	WDAZ TV 8	UND space suit to be featu	http://www.wdaz.com/event/article/id/20321/

Facebook

Universe Today		https://www.facebook.com/universetoday
BBC Focus Magazine		https://www.facebook.com/sciencefocus
I Fucking Love Science	5089 Likes, 450 shares an	https://www.facebook.com/photo.php?fbid=679337632(
Science is Seriously Awesome		https://www.facebook.com/ScienceIsSeriouslyAwesom
Aerospace Engineers Association		https://www.facebook.com/Aspcea/timeline?filter=3
The Backyard Astronomer		https://www.facebook.com/thebackyardastronomer
Department of Aerospace Enginee		https://www.facebook.com/srmaero
Milky way scientists		https://www.facebook.com/Milkyway.Nasa.1159432164
Astronomical Society of the Palm E		https://www.facebook.com/PalmBeachAstro
Israeli Astronomical Association		https://www.facebook.com/IsraelAstronomyIAA
Astronomy: State of the Art - Tucs		https://www.facebook.com/AstronomySOTA/posts/1020
United Space School		https://www.facebook.com/UnitedSpaceSchool
SKA South Africa		https://www.facebook.com/SKASOUTHAFRICA
Societe Haitienne d'Astronomie		https://www.facebook.com/SocieteHaitienneDAstronom
Space-X		https://www.facebook.com/BRAJENDRA11
ANZSA-Australia new zealand spa		https://www.facebook.com/AnzsaAustraliaNewZealand
56 Solar Parallel		https://www.facebook.com/X22Zolar
Lights in the Dark |		https://www.facebook.com/LightsInTheDark
Space Generation Advisory Counc		https://www.facebook.com/spacegeneration
SternSchnuppenNacht, La Nuit de		https://www.facebook.com/Sternschnuppennacht
Suns and Starry Streams |		https://www.facebook.com/OfSunsAndStarryStreams
Science Communication Internatio		https://www.facebook.com/scicom.intl
PlanetaryLandscapes		https://www.facebook.com/PlanetaryLandscapes

11.3. Social Media Activities

The World Space Week 2013 was promoted through following official channels:

- Twitter: @WorldSpaceWeek, @OeWF
- Facebook: facebook.com/WorldSpaceWeek, facebook.com/spaceforum
- Google+: plus.google.com/113571542166808727471/, gplus.to/OeWF
- YouTube: www.youtube.com/OeWF

Plus all project partners & MCC volunteers were motivated to use their personal social media channels to promote the World Space Week.

The official hash tags were:

#WSW2013 as main hashtag for all ongoing World Space Week activities

#simulateMars additional hashtag for all activities involving Mars analog activities & official hashtag for the MarsTweetup on 5th October 2013

With the Social Media accounts we accompanied the whole World Space Week, reported what was going on the Mission Control Center in Innsbruck, at the MDRS station in Utah and featured incoming World Space Week events from all over the world.

On Social media following key elements of the World Space Week campaign were featured:

- MarsTweetup #simulateMars on 5th October 2013 at the MCC in Innsbruck
- Promoting Mars Earth Sample & spot the meteorite competition
- World Space Walk 2013
- Say “Hi to Juno”

MarsTweetup #simulateMars

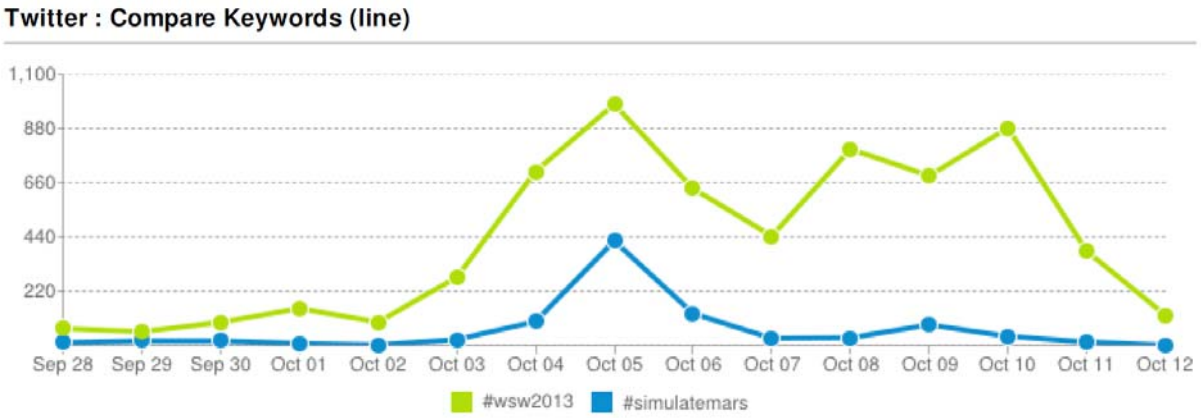
The MarsTweetup was held on 5th October 2013 from 09:30 – 17:30 at the MCC in Innsbruck. The registration for the MarsTweetup didn’t generate much interest. We got in total 21 registrations from 12 different countries. 13 people, including the MarsTweetup organizer, from 5 different countries attended the Tweetup.

MarsTweeetup @ MCC Innsbruck (c) OeWF (Clemens Kleinlercher)

Statistics:

From 1st Oct 2013 – 14th October 2013 the main #wsw2013 hashtag generated 6,622 post from 1,985 users and reached 4,907,994 users on Twitter with 19,825,473 impressions. As comparison the #socialSpace hashtag from the ESA/DLR event on 22Sep2013 generated 5,291 posts from 1,934 users with almost 2 mio reach and 31,5 Mio impressions (Source: https://twitter.com/JustBe74/status/382179451293143040). But as a difference, most of the tweets (ca. 4k posts on 22Sep) were produced on 22Sep2013 were the event was held. 60

Social Media users were invited & therefore generate a big buzz on 1 day, whereas for the World Space Week more than 1000 events were held all over the world during one week. Depending on the event location internet connections and the social media knowledge of the event organizer it can be estimated that only a small percentage of all events were covered on social media.



Comparison of #wsw2013 & #simulateMars hashtags (Source: Hoosuite.com)

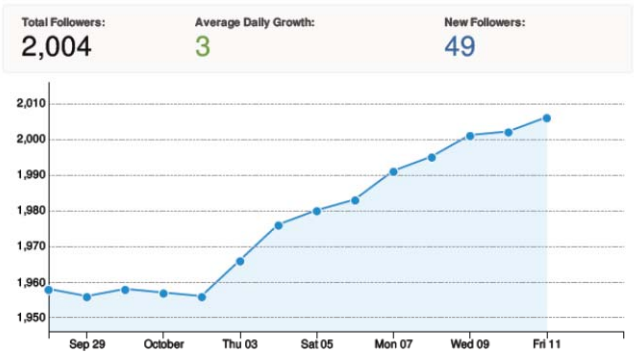
The comparison between #wsw2013 and #simulateMars hashtag shows that the #wsw2013 is the primary hashtag during the World Space Week 2013 and is used during the whole week. The biggest peaks are on 5Oct2013 were the MarsTweetup was held and on 10Oct2013, the last day of the World Space Week. A third peak was on 8Oct2013 were also the World Space Walk was held.

The #simulateMars is not as popular as the #wsw2013, due to its specific use to underline Mars analog activities. Highest peak was during the MarsTweetup on 5Oct2013 and therefore significant contributes to the #wsw2013 as the MarsTweetup participants used both hashtags.

All social media accounts profit from the strong outreach on social media and grew during the World Space Week.

Twitter

Between 28Sep2013 – 12Oct2013 the @WorldSpaceWeek account got 333 new followers, the @OeWF account 49.



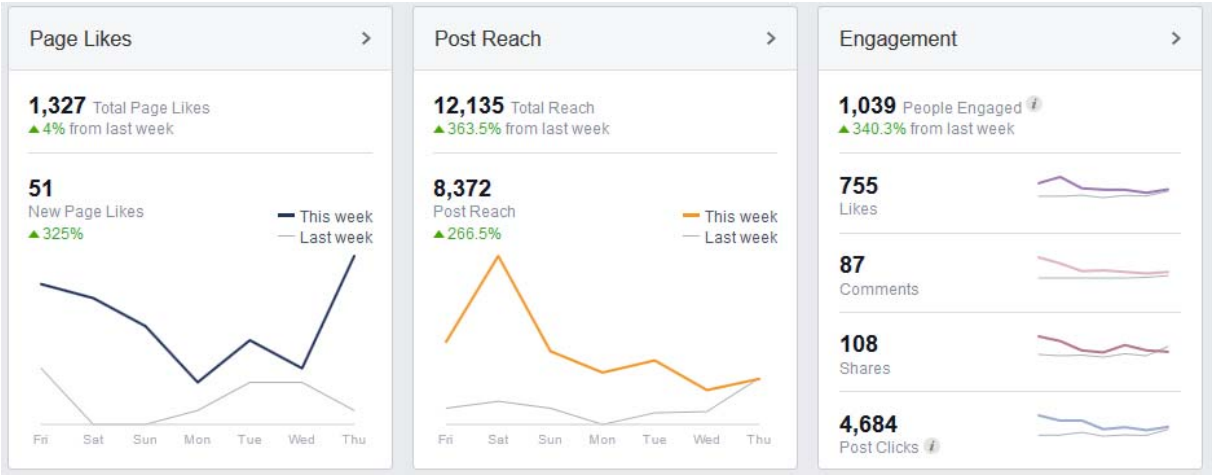
@OeWF Twitter account growth

@WorldSpaceWeek Twitter account growth

Facebook:

Between 4Oct2013 – 10Oct2013 facebook.com/WorldSpaceWeek account got 231 new likes with 27,506 total weekly reach. The facebook.com/OeWF account 51 new likes with 12,135 weekly reach. The weekly reach on Facebook is the number of unique people who have seen any content from the Facebook page.

World Space Week Facebook Insights 4Oct-10Oct2013



OeWF Facebook Insights 4Oct-10Oct2013

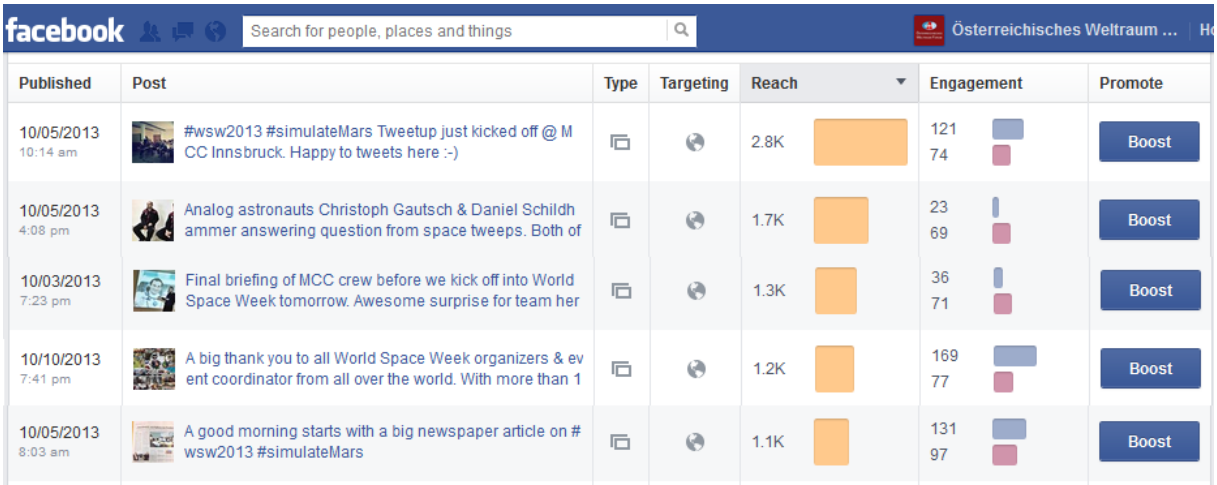
Most popular posts

Twitter:

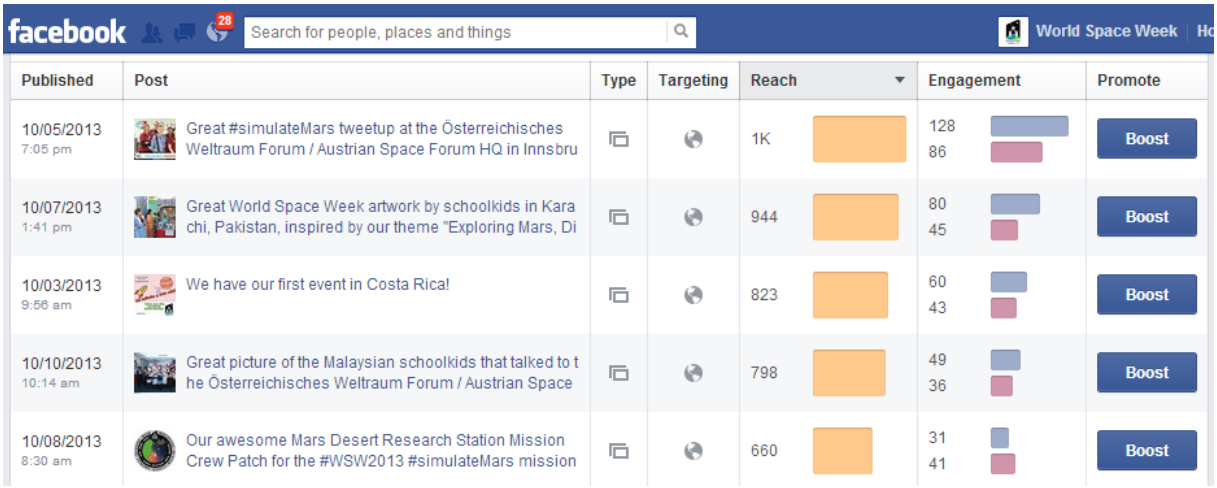
Most Popular Links

Rank	Date	Post	Clicks
1	Oct 5, 2013	http://ow.ly/pwpN6 http://mission.oewf.org/telemetry See what our analog astronaut is seeing. telemetry webcam http://ow.ly/pwpN6 #wsw2013 #simulateMars	29 clicks
2	Oct 7, 2013	http://ow.ly/praEy http://blog.oewf.org/en/2013/10/picture-of-the-... RT @oewf: Picture of the day: Telecon communicating with worldwide #WSW2013 http://ow.ly/i/3lLvp More: http://ow.ly/praEy	23 clicks
3	Oct 6, 2013	http://ow.ly/pxP04 https://www.facebook.com/media/set/?set=a.10151... Photo tour through #wsw2013 #simulateMars MCC in Innsbruck, AT. Have a look behind the scenes: http://ow.ly/pxP04 #ibktwit	16 clicks

Facebook:



OeWF Popular Posts on Facebook



Published	Post	Type	Targeting	Reach	Engagement	Promote
10/05/2013 7:05 pm	Great #simulateMars tweetup at the Österreichisches Weltraum Forum / Austrian Space Forum HQ in Innsbru			1K	128 86	Boost
10/07/2013 1:41 pm	Great World Space Week artwork by schoolkids in Kara chi, Pakistan, inspired by our theme "Exploring Mars, Di			944	80 45	Boost
10/03/2013 9:56 am	We have our first event in Costa Rica!			823	60 43	Boost
10/10/2013 10:14 am	Great picture of the Malaysian schoolkids that talked to t he Österreichisches Weltraum Forum / Austrian Space			798	49 36	Boost
10/08/2013 8:30 am	Our awesome Mars Desert Research Station Mission Crew Patch for the #WSW2013 #simulateMars mission			660	31 41	Boost

WSW Popular Posts on Facebook

YouTube

All teleconferences with schools, science centers & partners during the World Space Week were broadcasted via Google hangouts live and uploaded to the OeWF YouTube channel. In total 49 videos are available on the YouTube channel.

Between 28Sep2013 – 10Oct2013 the OeWF Channel got 13 subscribers, 3,277 views and 8,161 estimated video minutes were watched. All videos got 54 new likes, 4 dislikes and 17 comments. In the previous period 13Sep – 27Sep we didn't have any engagement on the YouTube channel:

Top 5 videos:

VIDEO	VIEWS ↓	ESTIMATED MINUTES WATCHED	LIKES
World Space Walk 2013	1,253	2,864	16
World Space Week 2013: Welcome message...	143	214	3
WorldSpaceWeek-PartTimeScientists-Telecon	107	408	0
WorldSpaceWeek Hyperion(polish)	89	202	0
WorldSpaceWeek-MCC-Telecon	84	451	1

YouTube insights 28Sep-12Oct2013

All World Space Week videos are available on this playlist:

https://www.youtube.com/playlist?list=PLW9KJU2v3qkcR_cy3HPgIRAEcauW_MiJz

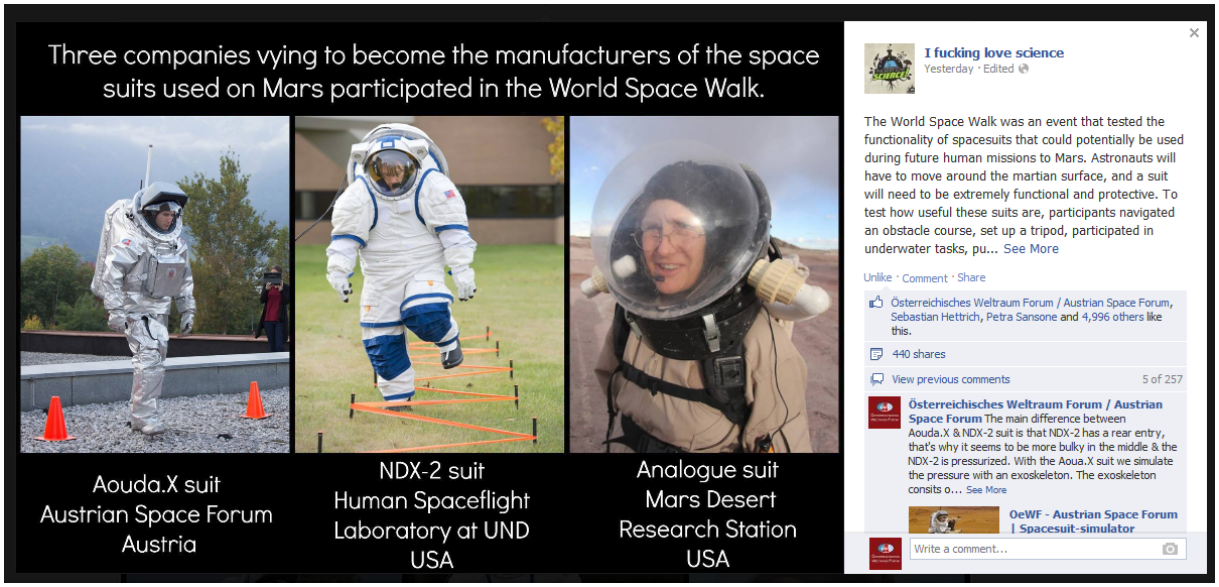
Google+ there are no statistics available

OeWF website & blog

During World Space Week the OeWF website was visited by 4,789 people (27Sep-11Oct2013) compared to previous period (12Sep-26Sep2013) that's an uplift of 246.03%. We had 5,969 visits (+ 241.48%) and

12,542 Pageviews (+261.41%). The amount of new visitors rised to 75.88% (previous period 69.28%). **The best day was Friday 11Oct2013 with 1,348 visits!**

Friday's peaked was generated through Facebook post of "I fucking love science":



Screenshot of "I fucking love science" post

Top 10 website pages:

Nr. 3 is the World Space Walk 2013 article, which was also linked from the Facebook page " I fucking love science". That's the reason of the high bounce rate. User just clicked from Facebook on the link and left, because they were only interested in the spacesuits.

	Page	Pageviews	Unique Pageviews	Avg. Time on Page	Entrances	Bounce Rate	% Exit
		12,161 % of Total: 100.00% (12,161)	9,390 % of Total: 100.00% (9,390)	00:01:57 Site Avg: 00:01:57 (0.00%)	5,785 % of Total: 100.00% (5,785)	69.35% Site Avg: 69.35% (0.00%)	47.57% Site Avg: 47.57% (0.00%)
1.	/cms/wsw2013-mission.phtml	**1,958**	1,447	00:02:30	1,162	68.85%	56.89%
2.	/cms/index.phtml	**1,137**	818	00:01:19	639	27.70%	23.66%
3.	/cms/index.php?id=210,1142,0,0,1,0	**1,133**	1,047	00:03:41	1,010	95.35%	90.56%
4.	/cms/world-space-week-2013-exploring-mars-discovering-earth.phtml	**951**	791	00:03:34	629	79.97%	67.93%
5.	/cms/world-space-week-2013.phtml	**654**	518	00:01:17	405	42.47%	38.53%
6.	/cms/earth-master-sample.phtml	**491**	396	00:04:00	282	85.11%	65.58%
7.	/cms/english.phtml	**345**	227	00:00:56	78	33.33%	18.26%
8.	/cms/wsw-2013-satellite-partners.phtml	**343**	180	00:01:51	39	56.41%	28.86%
9.	/en/cms/index.phtml	**243**	153	00:00:35	65	53.85%	21.40%
10.	/en/2013/10/picture-of-the-day-wsw2013/cms/index.phtml	**240**	203	00:03:31	110	78.18%	58.75%

Real-time Tracker: #WSW2013

Tweet 0

Conversation Tracker | Content Insights

Twitter | Instagram | Facebook

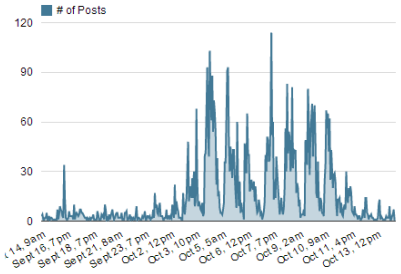
All Segments

Date range: Sept 14 - Oct 14

Download XLS

6,622	1,985	4,907,994	19,825,473
posts	users	reach	impressions

Timeline



Top Posts

RTs | Klout | Recent

Tip: Click on a tweet's date to be taken to original post

UT Austin @UTAustin 89 — Oct 9 — 8
@UTAerospace students devising human "Mission to Mars" http://t.co/JAUujvDdTe #WSW2013

Tate @Tate 87 — Oct 6 — 28
Happy World Space Week! Here's some galactic artworks that are out of this world... #WSW2013 http://t.co/sA9dd2UcTc http://t.co/ogoCQieXRo

Amy Shira Teitel @astVintageSpace 72 — Oct 10 — 11
For the end of #WSW2013, my look at the Outer Space Treaty that came into effect today in 1967 via @Discovery_Space: http://t.co/kEEM8jlySKS

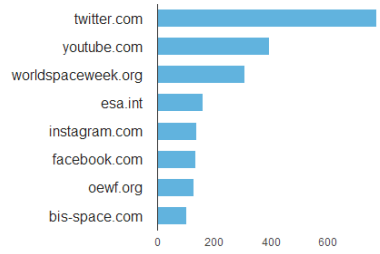
CanadianSpaceAgency @csa_asc 71 — Oct 3 — 17
World Space Week starts tomorrow (Oct. 4) on the anniversary of Sputnik's launch. How will you celebrate #WSW2013?

ESA @esa 71 — Oct 6

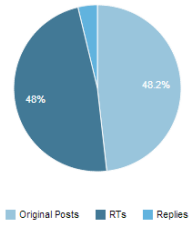
+ More

Top Sites

Domains | Links



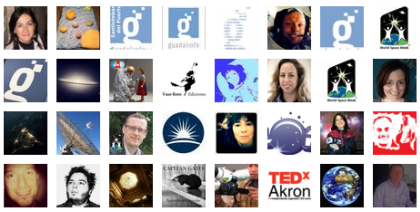
Share of Posts



Most Influential

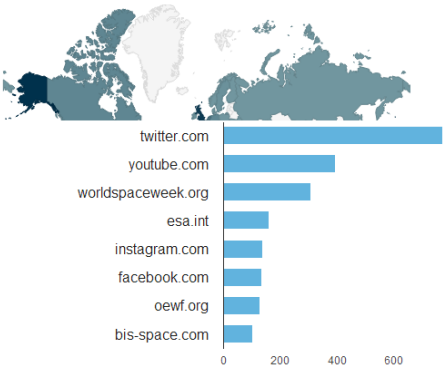
Avg RTs | Klout | Frequency

Recent Users

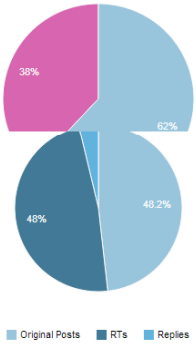


Location

World | USA

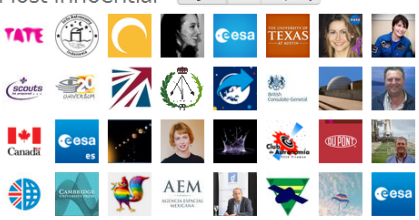


Demographics

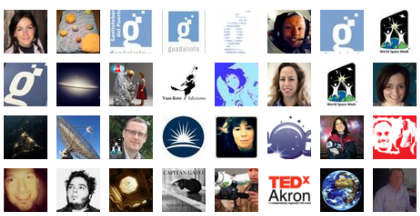


Most Influential

Avg RTs | Klout | Frequency



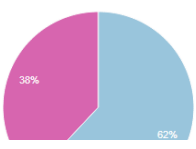
Recent Users



Location

World | USA

Demographics



12. Austrian National Events

Supported by

11.1. School presentations

World Space Week presentations were give in Austrian Schools throughout October – ranging from traditional classroom presentations to visits of Tyrolean schools at the Mission Control Center in Innsbruck, Austria. The national satellite events were managed by Gerhard Groemer, OeWF Upper Austria to facilitate the shipment of education hardware and being the liaison with the regional partners.

Mission Control School Visits

Four school classes visited the Mission Control Center in Innsbruck, interacting with the flight controllers, scientists and establishing contact with external schools via Google+ Hangouts from the Flight Control Room.

MCC team members also gave classroom presentations in Austria, e.g. in a series of lectures at the Akademisches Gymnasium Linz (Academic Grammar School Linz, Upper Austria) and other locations.

12.2. National events

Planetarium Klagenfurt

On Saturday October 5 the Austrian Space Forum

participated within the World Space Week event in the Austrian Long Night of Museums (Österreichische Lange Nacht der Museen). The event took place in the Planetarium Klagenfurt in Carinthia. The Austrian Space Forum represented by Anita Rinner approached young people in particular families and kids to tell them about their outreach activities. Approximately 80 people interestingly followed the highlight of this slot, namely a teleconference with the Part-Time-Scientists in Berlin and the Mission Control Centre in Innsbruck.

The session was moderated by Bernd Warmuth and Kurt Anetzhuber from the Planetarium Klagenfurt.

People of all ages are target of the forum´s goal to link people and space activities. In total, the Planetarium Klagenfurt counted more than 2000 visitors participating in various shows at this night and achieved the 3rd place in the category best visited spot during the Long Night of Museums in the city Klagenfurt.

Science Center „Welios“, Wels

On 5th of Octber, more than 300 visitors attended the lectures of Dr. Eva Hauth and Mag. Stefan Hauth during the World Space Week. The evening started with a multimedia presentation on the MARS2013 Mars expedition simulation.

One of the highlights was a live-link to the Mars Desert Research Station in Utah, where Haritina Mogosanu from Kiwispace shared her passion for space exploration. After that, a conection to the University of Iowa's MAVRIC rover team was established: Josh Delarm and his team explained the project and their motivation behind the engineering endeavour. Two of the members of the Welios audience had the exclusive opportunity to actually teleoperate the rover.

Finally, Leo Ludick from the Welios science center moderated a a podium discussion, together with

- Bruno Josseck (Tech. Univ.y Graz)
- Rudolf Hujber (who manufactured the garment during AUSTROMIR)
- Eva and Stefan Hauth (Austrian Space Forum)

Reflecting on the AUSTROMIR mission, the work of a “space garment manufacturer”, the TUGSat-mission and why it is important for Austria to engage in space exploration activities.

Complementing the lectures and discussions, kids were encouraged to dress in childrens spacesuits, a 3-axis motion trainer was deployed for the public, as well as several exhibition items of Mike Koeberl, such as the AUSTROMIR-sensor vest and a Sokol-pacesuit were on display.

Graz 1 (Bundesoberstufenrealgymnasium BORG Monsbergergasse, Graz, Styria)

Earth-to-Mars-Communication-simulation:

Professor Weinberger of the BORG Monsberger organized a simulated Earth-Mars communication. The class was divided in two groups. One group was “based on Earth” while the other group manned a hypothetical “Marsbase”. A special software simulated the time delay in

communication between Mars and Earth. The time delay was however reduced to 15 seconds for the purposes of this simulation. The group on "Mars" had to assemble a device using Lego- bricks while the group on Earth were in possession of the manual and had to tell them how to do it. From time to time it proved quite tricky to overcome the communication difficulties. But the simulation gave a good insight in the challenges of interplanetary communication.

Report/Photos: Hannes Mayer, University Graz

Graz 2 (Graz International Bilingual School, „GIBS") / Paper Rocket Competition:

Pupils at the Graz International Bilingual School (GIBS) under the supervision of Professor Patricia Raposo-Weinberger built paper rockets and launched them at the school premises. The rocket (propelled by air pressure) that flew the greatest distance won. Pupils were also required to calculate the ideal angle to launch the rocket in order to achieve the greatest range. Several test flights showed different results and led to adaptation of the launching angle and/or the stabilizing fins of the rockets. Pupils showed great enthusiasm in the construction and operation of the paper rockets and while the results were quite mixed all rockets launched properly and reached respectable altitudes while flying across the school yard. By conducting these experiments, the pupils were able to verify the relation of the launch angle and the range of the rockets. – Paper Rocket Competition

Students at the Graz International Bilingual School (GIBS) under the supervision of Professor Patricia Raposo-Weinberger built paper rockets and launched them at the school premises. The rocket

(propelled by air pressure) that flew the greatest distance won. Pupils were also required to calculate the ideal angle to launch the rocket in order to achieve the greatest range. Several test flights showed different results and led to adaptation of the launching angle and/or the stabilizing fins of the rockets. Pupils showed great enthusiasm in the construction and operation of the paper rockets and while the results were quite mixed all rockets launched properly and reached respectable altitudes while flying across the school yard. By conducting these experiments, the pupils were able to verify the relation of the launch angle and the range of the rockets.

Report/Photos: Hannes Mayer, University Graz

Jugend und Familientage Landeck and Imst / Tyrol

In conjunction with the family days of the government of the state of Tyrol, two WSW events were held in the cities of Landeck and Imst including water rocket building workshops, childrens spacesuits and a live-link to the Mission Control Center in Innsbruck.

OeWF president Gernot Groemer together with the Member of the Government of the State of Tyrol, Dr. Beate Palfrader,

Astronauten-training for Kids in St. Poelten (Möbelhaus XXXLutz)

The Lower Austria amateur association Antares, in cooperation with teh Austrian Space Forum invited for a kids astronaut training in a shopping mall in St. Poelten, Lower Austria. About 70 children as well as numerous adults attended the day-long event by trying out the childrens space suits, building model rockets or try to do coordination and balance exercises. For the younger kids, astronomical topics like light diffraction, satellites and painting astronomical objects were done.

Report: Gabriele Gegenbauer, Photos: Doris Froehlinger

28 Stadt St. Pölten

Bei der NÖN im Album

Auf ins Weltall mit Antares

18 Leute

XXXLutz startete eine Raumfähre ins Weltall