



# PLANMAP

Geologic Mapping of our Solar System

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## 1. Executive Summary

The present deliverable provides the summary of the dissemination and outreach activities done up to the 31/05/2019. As foreseen by the communication and dissemination plan, project partners presented the progress of the work during conferences and meetings for the scientific community and organized activities to address students and the general public across several European states. The PLANMAP team also channelled scientific contents and products through social media platforms such as Facebook, Instagram, Twitter and Youtube to reach the wide public.

## 2. Dissemination and Communication Plan

The following tables 1 and 2 show the global dissemination and communication plan of the three years of the project. Differently, table 3 summarises the foreseen goals set for the first year of project activity subdivided by category (Conference Presentations, Publications, Communications within ESA activities and Outreach activities).

	Dedicated PLANMAP Portal and Web services	Conference Presentations	Papers	Conference Session	Communications within ESA activities	PLANMAP workshops	PLANMAP school	Interactive Virtual Environment	PLANMAP team meeting at EAC
<b>Partners Involved</b>	All (JacobsUni lead) Three releases foreseen at months 15-25/36. A total of at least 15 products accessible via PLANMAP portal are foreseen.	All First year: at least 10 presentation. Second year: at least 20 presentations. Third year: at least 30 presentations	All First year: contribution to at least 3 publications. Second year: 3 submission mainly supported by PlanMap and other 4 submission. Third year: 6 submission mainly supported by planmap and substantial contribution to other 5.	All (UNIDP lead) one dedicated conference session in the last year	All At least two communication at ESA courses or instrument meeting every year.	All (JacobsUni lead) one workshop in the three year project	All (JacobsUni lead) One school in the last year project (deliverable foreseen at month 30)	CNRS Interactive virtual reality at the last year (Month 30) and event dedicated	All Presentation of the most relevant final products of the different WPs
<b>Number of Actions-Aims</b>	Jacobs is in charge of the deliverables, but all the other partners must deliver their product once accomplished and published	Each partner should assure at least 1 presentation during the first year, at least 3 presentations during the second year; at least 4 presentation in the last year	Each partner should assure a contribution to at least 2 papers in the 3 year project and must be in charge of 1 or more publications mainly supported by PLANMAP during the three years project.	UNIDP is in charge of organizing or co-organizing the dedicated EGU and EPSC session together with the other partners	Each Partner must give at least a communication or organize a dedicated activity within ESA instrument meeting or ESA courses during the three year projects.	JacobsUni is in charge of co-organizing a workshop together with YESPA activity. Every partner should have representatives that will attend the workshop	JacobsUni is in charge but all the partners must attend organizing training activities within the school on the subject they were involved within planmap	CNRS must fulfill the deliverable and organize the event	Participation Mandatory
<b>Partners duties</b>									
<b>Dissemination group target</b>									
Planetary Scientist in general	X	X	X	X		X	X	X	X
Bachelor degree students	X		X			X	X	X	X
Master degree students	X	X	X	X		X	X	X	X
PhDs	X	X	X	X		X	X	X	X
ESA mission Instrument teams	X	X	X	X	X	X	X	X	X
ESA astronauts and engineers	X		X		X			X	X

Table 1: Dissemination plan for the entire duration of the project

	Web page: news	Web page: downloadable drawing materials for students and kids	Interactive web page		Virtual Environment	Social Media	Seminars and activities at Schools	Public Talks	Night of the researcher, National Science Festival, Bergamo Scienza	Press releases
			Story maps	3D Displays						
<b>Involved Partners</b>	All (UNIPD lead)	UNIPD	ALL	UNIPD, JACOBS, CNRS	CNRS	All (UNIPD lead)	All	All	All	All
<b>Number of Actions-Aims</b>	From second year: 1 News every month	6 Drawings every year (Deliverables at Months 6, 15, 25). A comics for school students and a novel for kids at the end of the project (Deliverables at Month 36). A dedicated magazine at Month 36	From second year: at least 2 release every year (Deliverables: months 15, 25, 36)	3 displays at the last year (Deliverables: months 25, 36)	Give representation at the last year (Month 28)	Year 1: on average 2 entries every month. From second year: 10 entries every month, one of them a contest on strange features on planetary surfaces	On average : 2 actions every year	On average 3 actions every year	At least one activity every year	One press release every year aiming at least 20 newspaper news every year.
<b>Partners duties</b>	Each partner must suggest a news every two months to be selected.	UNIPD must fulfill the deliverables.	Each Partner which has published a map must provide material to WP7 for story maps.	Each Partner which has produced a 3D geo-model or DOIMs must provide material to WP7 for story maps.	CNRS must fulfill the deliverable.	Each partner must insert at least one entry every two months.	Each Involved Partner must organize a seminar or an activity at schools in the three years.	Each Partner must give one to two public talks during the 3 year project.	Partners must participate in the European Research Night: if they will have an occasion to .	Each Partner must give a press release whenever a relevant scientific paper is out or when they host PLANMAP meeting
<b>Partners duties</b>										
<b>Communication group target</b>										
High School Students	X	X	X	X	X	X	X	X	X	X
Kids (primary and secondary schools)	X	X	X	X	X	X	X	X	X	X
General Public	X	X	X	X	X	X	X	X	X	X
General Professional public	X	X	X	X	X	X	X	X	X	X
Press and Media	X	X	X	X	X	X	X	X	X	X
Decision Makers and Politics	X	X	X	X	X	X	X	X	X	X

Table 2: Communication plan for the entire duration of the project

	Conference Presentations	Publication	Communications within ESA activities	Downloadable materials for students and kids	Social Media	Seminars and activities at Schools	Public Talks	Night of the researcher, National Science Festival, Bergamo Scienza	Press releases
<b>Partners involved</b>	All First year: at least 10 presentations. Second year: at least 20 presentations. Third year: at least 30 presentations	All First year: contribution to at least 3 publications. Second year: 3 submission mainly supported by PlanMap and other substantial contributions to other 4 submission. Third year: 6 submission mainly supported by planmap and substantial contribution to other 5.	All At least two communication at ESA courses or instrument meeting every year.	UNIPD 6 Drawings every year (Deliverables at Months 6, 15, 25). A comics for school students and a novel for kids at the end of the project (Deliverables at Month 36). A dedicated magazine at Month 36	All (UNIPD lead) Year 1: on average 2 entries every month. From second year: 10 entries every month, one of them a contest on strange features on planetary surfaces	All On average : 2 actions every year	All On average 3 actions every year	All At least one activity every year	All One press release every year aiming at least 20 newspaper news every year.
<b>Number of Actions-Aims</b>	Each partner should assure at least 1 presentation during the first year, at least 3 presentations during the second year, at least 4 presentation in the last year	Each partner should assure a contribution to at least 2 papers in the 3 year project and must be in charge of 1 or more publications mainly supported by PLANMAP during the three years project.	Each Partner must give at least a communication or organize a dedicated activity within ESA instrument meeting or ESA courses during the three year projects.	UNIPD must fulfill the deliverables.	Each partner must insert at least one entry every two months.	Each Involved Partner must organize a seminar or an activity at schools in the three years.	Each Partner must give one to two public talks during the 3 year project.	Partners must participate in the European Research Night if they will have the occasion to .	Each Partner must give a press release whenever a relevant scientific paper is out or when they host PLANMAP meeting
<b>Partners duties</b>									

Table 3: Dissemination and Communication plan, foreseen activities from 01/03/2018 to 31/05/2019

### 3. Dissemination and Communication Progress

The information collected in the following tables present the activities achieved by the PLANMAP team subdivided into 4 categories: Conference Presentations, Publications, Communications within ESA activities and Outreach activities.

For both outreach and dissemination activities we reported author list, title and topic, place and time and the audience reached through each specific action. Globally we report a profitable communication activity depicting a growing trend over time. As an example, concerning social media engagement, we activated a PLANMAP Facebook page, Twitter and Instagram accounts and enhanced the social media communication over the first year. During 2018 we produced averagely 5 entries/publications per month; these values have been increased, starting winter 2018, to 1 entry/publication every day concerning updates on PLANMAP activities (meetings and products), scientific news, planetary missions and outreach activities (e.g. international and national events dedicated to the Solar System exploration).

Overall we fulfilled the foreseen activities for the first year specified in the Dissemination and Communication Plan (refer to section 2).

<b>Activity</b>	<b>Foreseen for the 1st year</b>	<b>Achieved</b>
Conference Presentations	at least 10	42
Papers	contribution to at least 3 publications	1 published, 2 under revision
Communications within ESA	at least 2	2
Downloadable material for students	6 drawings	6
Social Media	on average 2 entries per month	on average 10 entries per month
Seminars and Activities in Schools	on average 2	7
Public Talks	on average 3	7
Outreach Events	at least 1	4
Press Release	20	20

Table 4: Comparison between the activities foreseen for the first year of the project and goal reached by the team.

Conference Presentations													
Type of publication	Repository Link	Link to publication	Title	Author(s)	Title of Journal	Number, date or frequency of journal	Pages	Publisher	Place of publication	Year	Open Access	is this peer reviewed publication?	Is this a joint/public/private publication?
Abstracts / Conference proceedings			Geologic mapping and stratigraphy of remote Martian outcrops using digital outcrop model and virtual reality: example of the Kimberley outcrop (Gale Crater, Mars)	Le Mouélic, S., Caravaca, G., Mangold, N., L'haridon, J., Le Deit, L., Massé, M.,	Geophysical Research Abstracts	21	EGU2019-3939	Copernicus	Vienna	2019	YES	YES	Public
Abstracts / Conference proceedings			Digital Outcrop Model Reconstruction And Virtual Reality Integration Of The Kimberley Outcrop (Gale Crater, Mars) For Geological "In Situ" Analysis	Caravaca, G., S. Le Mouélic and N. Mangold,	Geophysical Research Abstracts	21	EGU2019-3877	Copernicus	Vienna	2019	YES	YES	Public
Abstracts / Conference proceedings	<a href="https://www.hou.usra.edu/meetings/lpsc2019/pdf/1382.pdf">https://www.hou.usra.edu/meetings/lpsc2019/pdf/1382.pdf</a>	<a href="https://www.hou.usra.edu/meetings/lpsc2019/pdf/1382.pdf">https://www.hou.usra.edu/meetings/lpsc2019/pdf/1382.pdf</a>	3D Digital Reconstruction Of The Kimberley Outcrop (Gale Crater, Mars) From Photogrammetry Using Multi-Scale Imagery From Mars Science Laboratory	Caravaca, G., S. Le Mouélic and N. Mangold,	Lunar and Planetary Science Conference	50	#1382	Lunar and Planetary Institute	The Woodlands, TX, USA	2019	YES	YES	Public
Abstracts / Conference proceedings			A new assessment of the depositional record at Kimberley (Gale Crater, Mars) using Virtual Reality	Gwénaél CARAVACA, Nicolas MANGOLD, Stéphane LE MOUÉLIC, Laetitia LE DEIT, Marion MASSE	34th IAS Meeting of Sedimentology					2019	YES	YES	Public
Abstracts / Conference proceedings			Sedimentology of the Kimberley outcrop (Gale Crater, Mars), using "in situ" simulated field work in Virtual Reality	Gwénaél Caravaca, Nicolas Mangold, Stéphane Le Mouélic, Laetitia Le Deit, Marion Massé	EPSC Abstracts, vol. 13			EPSC-DPS	Geneva, Switzerland	2019	YES	YES	Public
Abstracts / Conference proceedings	<a href="https://meetingorganizer.copernicus.org/EGU2018/EGU2018-18106.pdf">https://meetingorganizer.copernicus.org/EGU2018/EGU2018-18106.pdf</a>	<a href="https://meetingorganizer.copernicus.org/EGU2018/EGU2018-18106.pdf">https://meetingorganizer.copernicus.org/EGU2018/EGU2018-18106.pdf</a>	Towards integrated geological maps and 3D geo-models of planetary surfaces: the H2020 PLANetary MAPPING project	Matteo Massironi, Francesca Altieri, Harald Hiesinger, Nicolas Mangold, Dave Rothery, Angelo Pio Rossi, Matthew Balme, Cristian Carli, Fabrizio Capaccioni, Gabriele Cremonese, Gianrico Filacchione, Stephane Le Mouelic, Vicram Unnikhan, and Carolyn Van Der Bogert	Geophysical Research Abstracts	20	EGU2018-18106	Copernicus	EGU Vienna	2018	YES	YES	Public
Abstracts / Conference proceedings	<a href="https://www.hou.usra.edu/meetings/lpsc2019/">https://www.hou.usra.edu/meetings/lpsc2019/</a>	<a href="https://www.hou.usra.edu/meetings/lpsc2019/">https://www.hou.usra.edu/meetings/lpsc2019/</a>	The first geological map of the Hokusai quadrangle (H05) of Mercury	Wright, J, Rothery DA, Balme, MR, Conway, SJ	Lunar and Planetary Science Conference		#1372	Lunar and Planetary Institute	The Woodlands, Texas, USA	2019	YES	YES	Public
Abstracts / Conference proceedings	<a href="https://www.hou.usra.edu/meetings/lpsc2019/">https://www.hou.usra.edu/meetings/lpsc2019/</a>	<a href="https://www.hou.usra.edu/meetings/lpsc2019/">https://www.hou.usra.edu/meetings/lpsc2019/</a>	Geological mapping of the Debussy quadrangle (H-14) of Mercury	Pegg, D, Rothery DA, Balme, MR, Conway, SJ	Lunar and Planetary Science Conference		#1271	Lunar and Planetary Institute	The Woodlands, Texas, USA	2019	YES	YES	Public
Abstracts / Conference proceedings			New crater size-frequency distribution measurements at the Apollo 16 landing site	Gebbing T., H. Hiesinger, W. Iqbal, and C. H. van der Bogert	Lunar and Planetary Science Conference	50	2337	Lunar and Planetary Institute	The Woodlands, Texas, USA	2019	YES	YES	Public
Abstracts / Conference proceedings			Revised crater size-frequency distribution measurements at the Apollo 14 landing site	Borisov D., H. Hiesinger, W. Iqbal, and C. H. van der Bogert	Lunar and Planetary Science Conference	50	2323	Lunar and Planetary Institute	The Woodlands, TX, USA	2019	YES	YES	NO



Conference Presentations													
Type of publication	Repository Link	Link to publication	Title	Author(s)	Title of Journal	Number, date or frequency of journal	Pages	Publisher	Place of publication	Year	Open Access	Is this a peer review d publication?	Is this a joint public/private publication?
Abstracts / Conference proceedings			Re-examination of the population, stratigraphy, and sequence of mercurian basins: Implications for Mercury's early impact history and comparison with the Moon	Orgel C., C. I. Fassett, G. G. Michael, C. H. van der Bogert, L. Manske, and H. Hiesinger	Lunar and Planetary Science Conference	50	2059	Lunar and Planetary Institute	The Woodlands, TX, USA	2019	YES	YES	NO
Abstracts / Conference proceedings			Geology of the Apollo 11 and 12 landing sites - New maps and insights	Iqbal W., H. Hiesinger, and C. H. van der Bogert	Lunar and Planetary Science Conference	50	1070	Lunar and Planetary Institute	The Woodlands, TX, USA	2019	YES	YES	NO
Abstracts / Conference proceedings			New geological maps and crater size-frequency distribution measurements of the Apollo 17 landing site	Iqbal W., H. Hiesinger, and C. H. van der Bogert	Lunar and Planetary Science Conference	50	1005	Lunar and Planetary Institute	The Woodlands, TX, USA	2019	YES	YES	NO
Abstracts / Conference proceedings			The light plains of the lunar northern region (45-90N)	Poehler C. M., H. Hiesinger, and C. H. van der Bogert	Lunar and Planetary Science Conference	50	2310	Lunar and Planetary Institute	The Woodlands, TX, USA	2019	YES	YES	NO
Abstracts / Conference proceedings			Geological mapping of large basins on the terrestrial planets in the scope of PLANMAP	Poehler C. M., W. Iqbal, C. H. van der Bogert, H. Hiesinger, A. M. Lewang, C. Rueckert, J. H. Pasckert, M. A. Ivanov, M. Massironi, and the PLANMAP Team	Lunar and Planetary Science Conference	50	2910	Lunar and Planetary Institute	The Woodlands, TX, USA	2019	YES	YES	NO
Abstracts / Conference proceedings		<a href="https://eis2019.arc.nasa.gov/abstracts.html">https://eis2019.arc.nasa.gov/abstracts.html</a>	Revised crater size-frequency distribution measurements at the Apollo 14 landing site	D. Borisov, H. Hiesinger, W. Iqbal, C. H. van der Bogert	European Lunar Symposium 2019		43747			2019	YES	YES	Public
Abstracts / Conference proceedings		<a href="https://eis2019.arc.nasa.gov/abstracts.html">https://eis2019.arc.nasa.gov/abstracts.html</a>	Geological mapping and absolute model ages around the Apollo 17 landing site	W. Iqbal, C. H. van der Bogert, H. Hiesinger	European Lunar Symposium 2019		71-72			2019	YES	YES	Public
Abstracts / Conference proceedings		<a href="https://eis2019.arc.nasa.gov/abstracts.html">https://eis2019.arc.nasa.gov/abstracts.html</a>	New geological maps of the Apollo 11 and 12 landing sites	W. Iqbal, H. Hiesinger, C. H. van der Bogert	European Lunar Symposium 2019		73-74			2019	YES	YES	Public
Abstracts / Conference proceedings		<a href="https://eis2019.arc.nasa.gov/abstracts.html">https://eis2019.arc.nasa.gov/abstracts.html</a>	Age and origin of the lunar northern light plains	C. M. Poehler, H. Hiesinger, C. H. van der Bogert	European Lunar Symposium 2019		113-114			2019	YES	YES	Public
Abstracts / Conference proceedings		<a href="https://eis2019.arc.nasa.gov/abstracts.html">https://eis2019.arc.nasa.gov/abstracts.html</a>	Geological mapping of the South Pole-Aitken Basin: A progress report	C. M. Poehler, H. Hiesinger, W. Iqbal, C. Rueckert, C. H. van der Bogert, M. A. Ivanov	European Lunar Symposium 2019		115-116			2019	YES	YES	Public
Abstracts / Conference proceedings		<a href="https://iecg_2018.sciforum.net/paper/view/conference/5410">https://iecg_2018.sciforum.net/paper/view/conference/5410</a>	Faults mapping in Noctis Labyrinthus area	Mayssa El Yazidi, Riccardo Pozzobon, Stefano Debei, Matteo Massironi	1st International Electronic Conference on Geosciences				online	2018	YES	YES	Public
Abstracts / Conference proceedings			Discovering Rembrandt basin's subsurface and Enterprise Rupes: 3D-model based on stratigraphic mapping and structural analysis	Semenzato A., Massironi M., Pozzobon R., Galluzzi V., Rothery D., Ferrari S.	EPSC Abstracts		EPSC2018-344	Copernicus	Berlin, Germany	2018	YES	YES	Public
Abstracts / Conference proceedings		<a href="https://meetingorganizer.copernicus.org/EPSC2018/EPSC2018-815_1.pdf">https://meetingorganizer.copernicus.org/EPSC2018/EPSC2018-815_1.pdf</a>	Tectonic structures in Noctis Labyrinthus area based on HRSC and CTX photogeological mapping	Mayssa El Yazidi, Riccardo Pozzobon, Stefano Debei and Matteo Massironi.	EPSC Abstracts		EPSC2018-815	Copernicus	Berlin, Germany	2018	YES	YES	Public
Abstracts / Conference proceedings			Structural Mapping of the Inner Layered Deposits of the Crimmelin Crater (Mars)	Pesce D., Pozzobon R., Massironi M.	EPSC Abstracts		EPSC2018-294	Copernicus	Berlin, Germany	2108	YES	YES	Public
Abstracts / Conference proceedings			Updates on geologic mapping of Kuiper (H06) quadrangle	L. Giacomini, V. Galluzzi, C. Carli, M. Massironi, L. Ferranti, P. Palumbo	EPSC Abstracts		EPSC2018-721	Copernicus	Berlin, Germany	2018	YES	YES	Public
Abstracts / Conference proceedings		<a href="http://www.iaps.inaf.it/attivita/convegni/dianetologia/">http://www.iaps.inaf.it/attivita/convegni/dianetologia/</a>	Spectral analysis of the Apollo basin on the Moon	F. Zambon, C. Carli, C. van der Bogert, H. Hiesinger, F. Altieri, M. Massironi, F. Capaccioni					Firenze	04-08/Feb/2019			

Conference Presentations													
Type of publication	Repository Link	Link to publication	Title	Author(s)	Title of Journal	Number, date or frequency of journal	Pages	Publisher	Place of publication	Year	Open Access	Is this a peer review publication?	Is this a joint public/private publication?
Abstracts / Conference proceedings		<a href="http://www.iaps.inaf.it/attivita/convegni/ganetologia/">http://www.iaps.inaf.it/attivita/convegni/ganetologia/</a>	Spectral variations across H-05 Hokusai quadrangle on Mercury: a connection between spectral properties and morpho-stratigraphic units.	F. Zambon, C. Carli, J. Wright, F. Altieri, L. Giacomini, M. Massironi, F. Capaccioni, D.A. Rothery, G. Cremonese and the PLANMAP Team					Firenze	04-08/Feb/2019			
Abstracts / Conference proceedings		<a href="http://www.iaps.inaf.it/attivita/convegni/ganetologia/">http://www.iaps.inaf.it/attivita/convegni/ganetologia/</a>	Proclus Crater: Spectral variability within Lunar Highlands.	C. Carli, G.Serventi, L. Giacomini, R. Pozzobon, M. Sgavetti					Firenze	04-08/Feb/2019			
Abstracts / Conference proceedings		<a href="http://www.iaps.inaf.it/attivita/convegni/ganetologia/">http://www.iaps.inaf.it/attivita/convegni/ganetologia/</a>	Geological mapping of the Kuiper (H06) quadrangle of Mercury: status update.	L. Giacomini, V. Galluzzi, C. Carli, F. Zambon, M. Massironi, L. Ferranti, P. Palumbo					Firenze	04-08/Feb/2019			
Abstracts / Conference proceedings		<a href="http://www.iaps.inaf.it/attivita/convegni/ganetologia/">http://www.iaps.inaf.it/attivita/convegni/ganetologia/</a>	Surface geology of Arsinoes Chaos: morphological and spectral affinities across Chaotic terrains on Mars.	E. Luzzi, Rossi A.P., Carli C., Altieri F.					Firenze	04-08/Feb/2019			
Abstracts / Conference proceedings			Spectral variations across H-05 Hokusai quadrangle on Mercury: a connection between spectral properties and morpho-stratigraphic units.	F. Zambon, C. Carli, J. Wright, F. Altieri, L. Giacomini, M. Massironi, F. Capaccioni, D.A. Rothery, G. Cremonese	Geophysical Research Abstracts		<a href="#">Abstr. 7796</a>		Vienna	2019			
Abstracts / Conference proceedings			Geological mapping of the Kuiper (H06) quadrangle of Mercury: status update.	L. Giacomini, V. Galluzzi, C. Carli, M. Massironi, L. Ferranti, P. Palumbo.	S41. Planetary evolution: insights from geological studies, meteorite analyses and terrestrial analogues		<a href="#">Abstr. 41-20</a>		Catania, Italy	12-14 Sep 2018			
Abstracts / Conference proceedings			Updates on geologic mapping of Kuiper (H06) quadrangle	L. Giacomini, V. Galluzzi, C. Carli, M. Massironi, L. Ferranti, P. Palumbo	EPSC Abstracts		<a href="#">Abstr. EPSC2018-721</a>		Berlin Germany	2018			
Abstracts / Conference proceedings		<a href="#">IAC-18.A3.1.12.x47635</a>	Planmap: Geological mapping supporting the exploration of the Moon, Mars and Mercury	Angelo Pio Roosi, Matteo Massironi, Francesca Altieri, Hiesinger Harald, Nicolas Mangold, David Rothery, Matthew Balme, Cristian Carli, Riccardo Pozzobon, Vikram Unnikhan					Bremen, Germany	2018			
Abstracts / Conference proceedings			Potential landing sites for the Chang'e 4 exploration mission to the Apollo basin, Moon	Orgel C., Ivanov M. A., Hiesinger H., Pasckert J. H., van der Bogert C. H., and G. Michael	European Lunar Symposium		#083		Toulouse, France	2018			
Abstracts / Conference proceedings		<a href="#">6075</a>	The making of the 1:3M geological map series of Mercury: Status and updates	Galluzzi V., L. Guzzetta, P. Mancinelli, L. Giacomini, A. M. Lewang, C. Malibard, A. Mosca, D. Pegg, J. Wright, L. Ferranti, H. Hiesinger, M. Massironi, C. Pauselli, D. A. Rothery, and P. Palumbo	Mercury Workshop		#6075		USRA Education Gallery, Columbia, MD, USA	2018			
Abstracts / Conference proceedings		<a href="#">6029</a>	Characterization of potential landing sites for upcoming lunar missions	Hiesinger H., Flahaut J., Ivanov M. A., Orgel C., Xiao L., Huang J., van der Bogert C. H., and Head J. W.	Lunar Missions and Plans for Exploration - New Views of the Moon 2		#6029		Aizu, Japan	2018			
Abstracts / Conference proceedings		<a href="#">1494</a>	Bequerel crater radial faults: a possible target for methane seepage investigations	Luzzi E., Rossi, A.P., Pozzobon, R., Oehler, D.Z., Etiope, G.	Lunar and Planetary Science Conference		#1494		The Woodlands, TX, USA	2019			
Abstracts / Conference proceedings		<a href="#">1969</a>	Characterization of high-priority landing sites for the Chang'e 4 exploration mission to the Apollo basin, Moon	Orgel C., Ivanov M. A., Hiesinger H., Pasckert J. H., van der Bogert C. H., and G. Michael	Lunar and Planetary Science Conference		#1969		The Woodlands, TX, USA	2019			
Abstracts / Conference proceedings		<a href="#">1846</a>	Preliminary geologic map of the Beethoven basin, Mercury	Lewang A. W., H. Hiesinger, H. Bernhardt, V. Galluzzi, L. Guzzetta, and M. Massironi	Lunar and Planetary Science Conference		#1846		The Woodlands, TX, USA	2019			

Conference Presentations													
Type of publication	Repository Link	Link to publication	Title	Author(s)	Title of Journal	Number, date or frequency of journal	Pages	Publisher	Place of publication	Year	Open Access	is this peer reviewed publication?	Is this a joint public/private publication?
Abstracts / Conference proceedings		<a href="#">1138</a>	Geology of the northern portion of the SPA basin on the Moon: Evidence for compositional stratification of the ancient lunar crust	Ivanov M. A., Hiesinger H., Orgel C., Pasckert J. H., van der Bogert C. H., and Head J. W.	Lunar and Planetary Science Conference	#1138			The Woodlands, TX, USA	2019			
Abstracts / Conference proceedings		<a href="#">EGU2018-4576</a>	Possible compositional stratification of the ancient lunar crust: Evidence from geological study of the northern portion of the SPA basin	Ivanov M., H. Hiesinger, C. Orgel, J. H. Pasckert, C. H. van der Bogert, J. W. Head, and E. Guseva	Geophysical Research Abstracts	EGU2018-4576			Berlin Germany	2018			

Table 5: Conference Presentations

Publications												
Type of publication	Repository Link	Link to publication	Title	Author(s)	Title of Journal	Number, date or frequency of journal	Pages	Publisher	Year	Open Access	is this peer reviewed publication?	Is this a joint public/private publication?
Article in journal			3D Digital Outcrop Model reconstruction of the Kimberley outcrop (Gale Crater, Mars) and its integration into Virtual Reality for simulated geological analysis	Gwénaél CARAVACA, Nicolas MANGOLD, Stéphane LE MOUËLIC, Laetitia LE DEIT, Marion MASSE	Computer & Geosciences				In prep		yes	no
Article in journal	<a href="https://agupubs.onlinelibrary.wiley.com/doi/10.1029/2018JE005590">https://agupubs.onlinelibrary.wiley.com/doi/10.1029/2018JE005590</a>	<a href="https://agupubs.onlinelibrary.wiley.com/doi/10.1029/2018JE005590">https://agupubs.onlinelibrary.wiley.com/doi/10.1029/2018JE005590</a>	Geologic history of the northern portion of the South Pole-Aitken basin on the Moon	M. A. Ivanov, H. Hiesinger, C. H. van der Bogert, C. Orgel, J. H. Pasckert, and J. W. Head	Journal of Geophysical Research Planets	123	2585-2612	American Geophysical Union	2018		yes	no
Article in journal			SURFACE EXPRESSIONS OF SUBSURFACE SEDIMENT MOBILIZATION ROOTED INTO A GAS HYDRATE-RICH CRYOSPHERE ON MARS	Barbara De Toffoli, Riccardo Pozzobon, Matteo Massironi, Francesco Mazzarini, Susan Conway, Gabriele Cremonese	Scientific Report				Accepted	gold	yes	no

Table 6: Publications

Communications within ESA activities						
Author Name(s)	Date	Place	Title	Type of communication	Audience	Additional Infos
van der Bogert C. H., H. Hiesinger, et al	2018	Amsterdam, Netherlands	Proposed landing sites in the South Pole-Aitken basin for upcoming lunar missions			CNSA-ESA Workshop
Orgel C., H. Hiesinger, C. H. van der Bogert, et al.	2018	Amsterdam, Netherlands	Potential landing sites for the Chang'e-4 exploration mission to the Apollo Basin, Moon			CNSA-ESA Workshop

Table 7: Communications within ESA activities

Outreach						
Author Name(s)	Date	Place	Title	Type of communication	Audience	Additional Infos
S. Le Mouélic, G. Caravaca	May 7th, 2019	LPG Nantes		Schools	Kids	~30 Children experienced Mars in virtual reality headsets.
G. Caravaca, S. Le Mouélic, N. Mangold				Story map	General public	Story Map about the Gale Crater, MSL mission and remote planetary geology and mapping
G. Caravaca, N. Mangold	April 10-11th, 2019	EGU 2019 Vienna (Austria)	EGU General Assemble	Festivals/Events	General Professional public	VR demos during poster sessions with associated posters
S. Le Mouélic, G. Caravaca	February 7th, 2019	Stéréolux, Nantes (France)	Nuit Blanche des Chercheurs	Festivals/Events	General public	VR demos
S. Le Mouélic, G. Caravaca	February 6th, 2019	LPG Nantes		Schools	High school students	VR demos and conferences about Martian geology
G. Caravaca	December 17th, 2018	Université de Bourgogne, Dijon (France)	3D Digital Outcrop Model reconstruction and Virtual Reality application for geological mapping and exploration of planetary bodies: example of the Kimberley outcrop, Gale Crater, Mars.	Public Talk	General Professional public	Seminar of the Biogéosciences Laboratory in front of geologists and M2 students, with VR demos
S. Le Mouélic	October 18th, 2018	Baye (France)	"Rencontres martiennes" festival	Festivals/Events	General public	
C. Carli	December, 4th, 2018	Pavia (Italy)	The Enigmatic Mercury Surface and Bepicolombo Mission	Public Talk	General Professional public	
Dave Rothery	July-1st-2018	London	A journey to the closest planet to the sun	Public Talk	General Professional public	TEDx Talk - <a href="https://www.youtube.com/watch?v=UZIPP0Uphl0">https://www.youtube.com/watch?v=UZIPP0Uphl0</a>
Carolyn van der Bogert	March-28th-2019	Institut für Planetologie, WWU Münster	Introduced an 8th grader to planetology, including making of maps and working within ArcGIS on planetary data sets.	Schools	Kids	
Erica Luzzi	December-19/ 20 - 2018	Istituto Comprensivo Palombara Sabina, Roma	Geologia Planetaria: dove, come e perché	Schools		
Luca Penasa	April- 26th- 2019	Radio Sherwood, Padova	Fruga nei Cervelli - planetary geology	Social media	General public	
Matteo Massironi	March-28th-2019	Teatro Orlandi, Velo Veronese, Verona	Il viaggio di una cometa attraverso il sistema solare	Public Talk	General public	
Matteo Massironi; Sabrina Ferrari	March-14th-2019	Scuola Arcobaleno, Padova		Schools	Kids	
Matteo Massironi; Riccardo Pozzobon	21-March-2019	Scuola Arcobaleno, Padova		Schools	Kids	
Matteo Massironi	30, april 2019	Università popolare di Padova	Il prossimo passo: geologia e futura esplorazione lunare	Public Talk	General public	
Matteo Massironi	May, 2019	Padova, Italy		Materials	General public	Stickers Print

Outreach						
Author Name(s)	Date	Place	Title	Type of communication	Audience	Additional Infos
Sabrina Frari, Barbara De Toffoli, Riccardo Pozzobon, Luca Penasa, Gloria Tognon, Andrea Semenzato, Ilaria Tommasi	September, 28th, 2018	Padova, Italy	Notte Bianca dei Ricercatori	Festivals/Events	General public	
Matteo Massironi	May, 5th, 2018	Liceo Scientifico "A. Messedaglia"-Verona, Italy	planetary geology: PLANMAP geological mapping and 3D rendering	Schools	High school students	
UniPd		Italy		Press releases	General public	15 articles during the first year
JacobsUni		Germany		Press releases	General public	5 articles during the first year
Matteo Massironi; Riccardo Pozzobon	May, 23rd, 2019	Italian Space Agency, Rome, Italy	Communication on Caves, Pangaea and PlanMap activities	Public Talk	Decision makers and politics	
Matteo Massironi	June, 27th, 2018	Italian Space Agency, Rome, Italy	Storia ed evoluzione geologica di Marte dalle immagini CASSIS ed il progetto H2020- PLANMAP	Public Talk	Decision makers and politics	and related Press Release

*Table 8: Outreach activities*