



# EPN2020-RI

**EUROPLANET2020 Research Infrastructure**

H2020-INFRAIA-2014-2015

Grant agreement no: 654208

**NA1 Workshop Sun's influence on planets, IRAP,  
Toulouse, France 09-11 October 2017**

Actual submission date: 19/10/2017

Start date of project: 01 September 2015

Duration: 48 months

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|---|---|---|
| Dissemination level   |   |   |
| <b>PU</b>   | Public  | x |
| <b>PP</b>   | Restricted to other programme participants (including the Commission Service)         |   |
| <b>RE</b>   | Restricted to a group specified by the consortium (including the Commission Services) |   |
| <b>CO</b>   | Confidential, only for members of the consortium (excluding the Commission Services)  |   |

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|-------------------------|---|
| <b>Project Number</b>   | 654208  |
| <b>Project Title</b>    | EPN2020 - RI                                  |
| <b>Project Duration</b> | 48 months: 01 September 2015 – 30 August 2019 |

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| <b>Deliverable Number</b>            |  |
| <b>Contractual Delivery date</b>     |  |
| <b>Actual delivery date</b>          | 19.10.2017   |
| <b>Title of Deliverable</b>          | NA1 Workshop Sun's influence on planets, IRAP, Toulouse, France 09-11 October 2017 |
| <b>Contributing Work package (s)</b> |  |
| <b>Dissemination level</b>           | Public   |
| <b>Author (s)</b>                    | Nicolas Andre (CNRS)   |

**Abstract:** Differences in the magnetic field and plasma environment at different planetary bodies, as well as the distance of the planet from the sun drives different space weather effects as we move through the Solar System. The use of solar wind propagation models combined with solar observations allows us to obtain and predict the interplanetary conditions around each planet and comet in the Solar System. We have reviewed observations of planetary space weather and space climate obtained by on-going or past space missions such as STEREO, MEX, VEX, MESSENGER, Galileo, Cassini, Rosetta, MAVEN, as well as identify ways to improve modeling of space weather and space climate in our Solar System in preparation for future missions such as Exomars, BepiColombo, and JUICE. New tools and methods developed by PSWS have been introduced and discussed. Events of particular interest have been identified and further analysed in details. A topical issue devoted to planetary space weather in the Journal of Space Weather and Space Climate following this workshop has been announced.

## Planetary Space Weather – Europlanet NA1 workshop

### Participants

|                      |                               |
|----------------------|-------------------------------|
| Beatriz Sanchez-Cano | (University of Leicester, UK) |
| Mika Holmberg        | (IRAP, France)                |
| Martin Volwerk       | (IWF Graz, Austria)           |
| Yoshifumi Futaana    | (IRF Uppsala, Sweden)         |
| Moa Persson          | (IRF Uppsala, Sweden)         |
| Carley Martin        | (University of Lancaster, UK) |
| Andrea Opitz         | (WIGNER, Hungary)             |
| Benjamin Grison      | (IAP, Czech Republic)         |
| Catherine Dieval     | (University of Lancaster, UK) |
| Niklas Edberg        | (IRF Uppsala, Sweden)         |
| Norberto Romanelli   | (LATMOS, France)              |
| Aniko Timar          | (WIGNER, Hungary)             |
| Daniel Santos-Costa  | (SwRI, USA)                   |
| Nicolas André        | (IRAP, France)                |
| Chihiro Tao          | (NICT, Japan)                 |
| Tomoki Kimura        | (Tohoku University, Japan)    |
| Go Murakami          | (ISAS/JAXA, Japan)            |
| Geraint Jones        | (UCL, UK)                     |
| Rui Pinto            | (IRAP, France)                |
| Baptiste Cecconi     | (OBSPARIS, France)            |
| Anna Kotova          | (IRAP, France)                |
| Vincent Génot        | (IRAP, France)                |
| Quentin Nenon        | (ONERA, France)               |
| Sébastien Hess       | (ONERA, France)               |

**24 participants (1/3 female scientists, 10% from inclusiveness countries)**

**Presentations available online at:**

<http://planetaryspaceweather-europlanet.irap.omp.eu/workshops.html>

**SOC:** N. André (*IRAP*), C.S. Arridge (*Univ. Lancaster*), Y. Futaana (*IRF*), A. Milillo (*INAF*), E. Roussos (*MPS*), M. Volwerk (*IWF Graz*)

**LOC:** N. André, M. Bouchemit, V. Génot, A. Goutenoir, M. Indurain (*IRAP*)

**Monday 09/10**

**09:30-09:45 Nicolas André**

Welcome and Objectives of the workshop

**09:45-10:15 Catherine Dieval**

Solar wind and IMF dependence of the Martian ionosphere

**10:15-10:45 Norberto Romanelli**

Variability of the Martian upper atmosphere and IMF control of the location of the Martian lobes

*10:45-11:00 Coffee break*

**11:00-11:30 Beatriz Sanchez Cano**

Mars plasma system response to space weather variability with solar cycle

**11:30-12:00 Yoshifumi Futanaa**

Space weather by ENA imagings in the (inner) solar system

**12:00-12:30 Niklas Edberg** Space Weather at Venus, Mars (and Titan)

*12:30-14:00 Lunch at IRAP*

**14:00-14:30 Chihiro Tao** 1D MHD propagation model

**14:30-15:00 Andrei Fedorov, Elena Budnik**

MEX and VEX Solar wind data

**15:00-15:30 Moa Persson**

Solar wind and EUV dependent models for the Venusian environment

*15:30-16:00 Coffee break*

**16:00-16:30 Martin Volwerk**

Ahead and behind - IMF interaction with a weakly outgassing comet

**16:30-17:00 Aniko Timar**

Solar wind dynamic pressure proxy from near comet observations

**17:00-17:30 Niklas Edberg**

Solar wind interaction with comet 67P

**Tuesday 10/10**

**09:30-10:00 Tomoki Kimura**

Multi-wavelength observations of Jupiter's aurora during Juno's cruise phase

**10:00-10:30 Chihiro Tao**

Variation of Jupiter's aurora observed by Hisaki/EXCEED

**10:30-11:00 Go Murakami**

HISAKI observation results related to solar wind effect on Jupiter's inner magnetosphere

*11:00-11:15 Coffee break*

**11:15-11:45 Daniel Santos-Costa**

Multifrequency analysis of the Jovian electron-belt radiation dynamics with ground-based and remote sensing observations and modeling tools

**11:45-12:15 Quentin Nenon**

Space and time variability of the Jovian radiation belts as seen by the physical model Salammbô

**12:15-12:45 Carley Martin**

Solar wind and seasonal influences on Saturn's current sheet

*Lunch at IRAP*

**14:00-14:30 Mika Holmberg**

Seasonal and solar cycle modulations of Saturn's inner plasma disk

**14:30-15:00 Nicolas André** CDPP/Propagation Tool and Heliopropa

**15:00-15:30 Benjamin Grison**

Event prediction at the outer planets

15:30-15:45 *Coffee break*

**15:45-16:15 Rui Pinto** Propagation of solar wind from 30 Solar radii to 1 AU

**16:15-16:45 Yoshifumi Futaana**

Solar wind control of Moon environment (incl surface interaction and mini-magnetosphere).

**16:45-17:15 Baptiste Cecconi** Radio emissions as planetary space weather probes

**19:30 Workshop Dinner at restaurant Le Bibent, place du capitole**

**Wednesday 11/10**

**09:30-10:00 Geraint Jones**

Cometary observations and derivation of SW properties

**10:00-10:30 Andrea Opitz**

Propagation of solar wind by magnetic lasso

**10:30-11:00 Benjamin Grison**

ICME propagation: testing the CDPP propagation tool

11:00-11:15 *Coffee break*

**11:15-11:45 Go Murakami**

Space Weather at Mercury – two point measurements with BepiColombo



**11:45-12:15 Nicolas Andre, Vincent Génot, etc**

CDPP Tools : AMDA+3DView

**12:15-12:45 Tomoki Kimura, Daniel Santos-Costa, etc**

VO Databases : Hisaki, VLA, etc

*12:45-14:00 Lunch at IRAP cafeteria*

14:00-15:30 Open forum

15:30-16:00 Coffee break

**16:00-17:00 Nicolas André**

Conclusions, Topical issue of JSWSC