

# **Minutes of the Europlanet N2 meeting at FMI, 29-31 Oct 2007**

**Recorded by : A.-M. Harri, N. Krupp et al.**

## **Introduction**

The Europlanet N2 activity had a working meeting on 29.-31.10.2007 in Helsinki, in the premises of the Finnish Meteorological Institute (FMI). The meeting agenda is presented in the Appendix 1. The list of participants can be found in Appendix 2. We had intense discussions on the agenda topics, as well as two highly interesting scientific talks. These minutes give a compact record of the meeting outcome and decisions. The action items generated during the meeting are recorded in the end of these minutes. The original presentations as well as these minutes will be found on the EUROPLANET-N2 web site.

## **The N2 past and present**

Norbert Krupp introduced the activity of the N2 including also a view on the past work performed in 2005-2006. It was clearly shown that the N2 has played an important role in the definition and restructuring phase of the N7 IDIS development work, as well as in the other N2 tasks within the Europlanet. Now it is proper time to introduce some modification in the N2 internal DWG structure to better respond to the new phase of the Europlanet.

## **The future of the N2 activity**

The N2 activity has performed very well since starting the work in 2005. During the last 6 months the Europlanet project has advanced significantly, indicates especially by the first demo versions of the IDIS being now available. This state of affairs poses new challenges on the N2 work.

Clearly, from now on, the emphasis on the N2 activity is to serve and monitor the IDIS development in the form of an expert and test group and a provider of additional science and resource information. This means, e.g., analysis of the science cases that are currently being implemented in the current version of the IDIS.

It was agreed that the N2 will contact the IDIS node managers in order to avoid too much redundancy between the different activities. This would include a request to get a list of teams the nodes are currently collaborating with (see action Items).

We also decide that the N2 management will contact each DWG Leader and Co-Lead to find out their view on the future focal areas of the N2 activity.

## Modification of the N2 DWG structure

The structure of the N2 is modified to better serve the new Europlanet working environment. We built a DWG-IDIS -matrix describing the connection between the existing N2 Science Cases and the IDIS thematic topics (see this meeting's documents on N2 web site). Also, we put together a document illustrating the collaboration of the N2 discipline working Groups with any future joint research topics.

N2 played and still plays an important role in the development of the new N7 IDIS structure. The newly created 4 leading nodes were constructed from the existing discipline working groups.

The following DWG-IDIS-matrix shows the current understanding and the role of the N2 discipline working groups in this new structure in combination with the 17 identified science cases.

			leading nodes	plasma	interior and surfaces	small bodies	atmospheres
			leading institution	IWF Graz	DLR Berlin	IFSI Frascati	IPSL Paris
			institutes involved	CESR/CDPP Toulouse			
N2 DWGs	description	leader, co-leader					
DWG 1	Atmospheres, ionospheres, exospheres	F. Leblanc, MPS, DLR, A. Milillo, E. Kallio					Understanding super-rotation
							Mars atmosphere measured by Spicam and GCM visualisation tool
							Titan ion chemistry
					quantifying Martian geochem. reservoirs	activity of cometary nuclei	catalogue of IR and Raman spectra
DWG 2	magnetospheres and plasmas	E. Bunce, P. Zarka, G. Erdős		Solar wind interaction at Saturn and aurora (Planetary aurorae and their electrodynamic drivers: solar wind vs. internal processes)			Solar wind interaction at Saturn and aurora
				plasma interaction with icy moons		activity of cometary nuclei	Titan ion chemistry
				periodic signatures at Saturn	solar wind comet surface interaction	solar wind comet surface interaction	
DWG 3+5	surface science + planetary moons	C. Sotin, A. Coustenis		plasma interaction with icy moons	plasma interaction with icy moons		
						dating planetary surfaces	
					solar wind comet surface interaction	solar wind comet surface interaction	
					Surface material composition		

					The Use of Terrestrial Analogues in Studies of the Martian Surface		
					exchange surface and interior, (Enceladus – A Small Active Icy Satellite)		
					quantifying Martian geochem. reservoirs		quantifying Martian geochem. reservoirs
DWG 4+9	small bodies and dust + solar system formation	H. Krüger, (A. Graps), T. Mäkinen		activity of cometary nuclei		dust contributions for zodiac cloud	
						structure of Kuiper belt	
						solar wind comet surface interaction	
						optimization of Rosetta output (What can we expect in the different mission phases and heliocentric distances for the Rosetta mission of the CO, CO2, H2O gases and dust fluxes from comet Churyumov-Gerasimenko )	
DWG 6	exo / astrobiology	F. Raulin, C. Cockell			exchange surface and interior, (Enceladus – A Small Active Icy Satellite)	optimization of Rosetta output (What can we expect in the different mission phases and heliocentric distances for the Rosetta mission of the CO, CO2, H2O gases and dust fluxes from comet Churyumov-Gerasimenko )	Titan ion chemistry
DWG 7	exoplanets	H. Lammer, H.Lichtenegger, G. Tinetti		planets under extreme solar conditions			planets under extreme solar conditions
DWG 8	planetary interior and composition	M. Toplis			quantifying Martian geochem. reservoirs		

				Mars Tectonics – The Link Between Surface And Interior		
				exchange surface and interior		
		leading nodes	plasma	interior and surfaces	small bodies	atmospheres

Science topics currently being worked on in the leading nodes

Selected science cases from N7 for fast implementation

already implemented

The identified science cases (compare with the minutes of the N2-N7 meeting, Villafranca, April 2006) have been put into context to the leading nodes and the discipline working groups in this matrix. Most of the science cases appear more than once in the matrix. The goal of this DWG-IDIS-matrix is:

- 1) help the leading nodes to identify the science cases and the corresponding discipline working groups in their field
- 2) help the discipline working groups to identify where their science cases fit in the new leading node structure
- 3) help to coordinate future activities

## Role of N2 DWG in future science themes and research activities

Also in the future the scientific discipline working groups will play an important role in determining the science topics of interest in the context of current and future exploration. The role of N2 discipline working groups as well as N2 as a whole in future science activities are mentioned in the following tables.

Science theme	Europlanet Discipline working group
<b>Giant planets systems as templates of planetary systems</b> (Galileo, Cassini-Huygens, New Horizon, JUNO, CosmicVision)	DWG1, DWG2, DWG9, DWG7
<b>Small bodies and origin of the solarsystem</b> (Asteroid and comets missions, Dawn, Rosetta, Phobos-Grunt, New-Horizons, CosmicVision)	DWG4, DWG9, DWG6
<b>Terrestrial planets and comparative planetology</b> (strong link to Earth sciences, MEX, VEX, Chandrayaan, Selene, Phoenix, BepiColombo, Auroraprogramme)	DWG1, DWG2, DWG3, DWG5, DWG6, DWG7, DWG8, DWG9
<b>«magneticworlds»: the Sun-planets connection</b> (Ulysses, all planetary missions, SOHO, Stereo and SOLO, Sentinel, synergies with CLUSTER et al.)	DWG1, DWG2, DWG7
<b>Exoplanets and Other Planetary Systems</b> (strong link to astrophysics community, COROT, KEPLER,	DWG1, DWG2, DWG6, DWG7, DWG9

GAIA, CosmicVision)	
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<b>Research activity</b>	<b>N2 participation as a whole</b>
Support to space missions, science operations and data analysis	yes
New instrumentations for Earth-based observations in planetary sciences	yes
Interdisciplinary computational modelling and data analysis(ICM & DA)	yes
Planetary VO and data mining	yes

## ACTION ITEMS generated during the meeting

- 1) ACTION ITEM: Odile Dutuit had approached the N2 with two questions: a) what type of help and work the JRA3 could expect from N2, and b) How does the "Titan ion chemistry" science case fit in the new IDIS node structure. Our draft replies to O. Dutuit's question is below. The reply on the JRA3 and the succeeding discussion with Odile will be taken care of by H. Lammer, and the reply on the ion chemistry science case is taken care of by N. Krupp.

### Draft reply: **N2 related activity to JRA3**

N2 experts will get involved in the frame of JRA3 in the critical evaluation of lab data, development of better access to the existing data bases, as well as the creation of new ones. This activity is aimed to put together and select the most essential lab data for planetary sciences. These data will be compiled by JRA3 to a user friendly service and made available to the European planetary science community.

Moreover, N2 experts will also get involved in the identification of yet-not-existing data relevant to the different science cases and shall propose corresponding experiments. For fulfilling these tasks a special N2 team will be established. This team will meet together with a panel of experts involved with JRA3.

- 2) ACTION ITEM: The N2 to contact the four IDIS nodes to strengthen the co-operation between N2 and the nodes. This question and the succeeding discussion with the IDIS nodes will be taken care of by N. Krupp.

We drafted the inquiry below:

- a) In order to avoid too much redundancy between the different activities, could you please provide us with a list of teams you are currently collaborating with?
- b) How much participation of N2 Discipline Working Group (DWG) members inside your node do you have at the moment?
- c) 3. How do you as a Science Manager of an IDIS node see the future role of the N2 DWGs
  - a) inside EuroPlaNet / FP6,
  - b) as support of IDIS development inside FP6 (until the end of 2008) ,
  - c) for the FP7 proposal?

- 3) ACTION ITEM: The following question and the succeeding discussion with the N2 DWG Leaders will be taken care of by N. Krupp.

How do you see the future role of your N2 DWG

- a) inside EuroPlaNet / FP6,
- b) as support of IDIS development inside FP6 (until the end of 2008) ,
- c) for the FP7 proposal?

## Appendix 1: Approved meeting agenda

- 1) Welcome and Agenda review
- 2) N2 past activity and future plans
  - N2: past and present (N. Krupp)
  - Views on the future focus by DWG leaders
  - The forthcoming Europlanet coordinator meeeting (AMH)
  - Discussion on the N2 role for the rest of the Europlanet project
- 3) IDIS development: current status and future schedule (W. Schmidt)
  - IDIS general overview (objectives and requirements)
  - The IDIS architecture
  - The current state of affairs on IDIS
  - Science Cases implementation, priorities
  - IDIS near future plans
- 4) N2 contribution for IDIS
  - What is needed and in what priority order
  - Practical forms of N2/N7 collaboration
- 5) DWG structure and its role in supporting the N7/IDIS (some reorganization may be needed)
- 6) FP7 preparation
- 7) ISSI workshop results
- 8) 3D hot particle and exosphere modelling on Mars and Venus (Herbert Lichtenegger)
- 9) H. Lammer: Exoplanets in the light of recent discoveries (Helmut Lammer)
- 10) Other topics
- 11) Adjourn



## Appendix 2: List of participants:

Name	email	Institution	Participant number
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