

## ISSI International Team #322: Towards a global unified model of Europa's exosphere in view of the JUICE mission

\*\*\*\*\*

### First Team Meeting

Bern, 1-5 Dec 2014

### Agenda

\*\*\*\*\*

\*\*\*\*\*

### Monday 1 Dec 2014

Observational data review and synthesis

\*\*\*\*\*

**10:00-10:15** Welcome and introduction to ISSI, by *Maurizio Falanga*

**10:15 - 10:45:** Welcome and Project Outline, by *Christina Plainaki*

**10:45-11:15:** Brief presentation of the Team members

**11:15-11:35:** Galileo occultation and plasma wave observations, by *Xianzhe Jia*

**11:35-11:55:** Particle measurements from the eV to MeV, by *Tim Cassidy*

**11:55-12:30:** Discussion and ideas

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

**14:00-14:30:** UV and VIS observations of Europa's atmosphere, by *Lorenz Roth*

**14:30-15:00:** Possible new interpretations of Europa's HST UV observations  
(*Tim Cassidy*)

**15:00-16:00:** Discussion

**16:00-17:00:** Work on data synthesis and/or comparison:

- UV space observations at 1 AU (i.e. HST/GHRS, HST/STIS, HST/ACS)
- in situ observations (Cassini/UVIS, NH/ALICE)
- VIS ground-based observations (University of Arizona telescope on Mt Bigelow, Keck telescope) of Europa's minor species (Na, K)
- Galileo occultation and plasma wave observations
- Particle measurements

**17:00: Welcome drink offered by ISSI**

\*\*\*\*\*

### Tuesday 2 Dec 2014

Observational data review and synthesis

\*\*\*\*\*

**09:30-10:00:** Discussion on the Cassini/MIMI observations of Europa's extended neutral torus

**10:00-12:30:** Work on data synthesis and/or comparison

*Possible Team-split in sub-groups (e.g. spectroscopy group, plasma/ENA group etc)*

**12:30-14:00: Lunch****14:00-16:00:** Continue the work on data synthesis and/or comparison and**16:00-17:30:**Overall summary of the observational data synthesis, including:

- Review tables (and/or figures),
- Fact Sheet and Open questions List
- Discussion and Conclusions and

Preparation of the first (preliminary) draft of

- **Technical report TR\_G1\_1** summarizing the analysis for the achievement of Science Objective G1.1 (**DEL#1**) (coordination by *Lorenz Roth* and *Joachim Saur*)
- **Technical report TR\_G1\_2** summarizing the analysis performed for the achievement of Science Objective G1.2 (**DEL#2**) (coordination by *Xianzhe Jia*).
- **Technical report TR\_G1\_3** summarizing the analysis for the achievement of Science Objective G1.3 (**DEL#3**) (coordination by *Iannis Dandouras*).
- **Technical report TR\_G1\_4** summarizing the analysis for the achievement of Science Objective G1.4 (**DEL#4**) (coordination by *Aikaterini Radioti*).

Assignment of possible Action Items for the Team-members (for the next months), related to the observational data review, comparison and synthesis

\*\*\*\*\*

**Wednesday 3 Dec 2014**

Initial work on model comparison

\*\*\*\*\*

**09:30 - 10:00:** Plasma modeling at Europa, by *Tim Cassidy***10:00-10:30:** Europa's plasma model, by *Aljona Blöcker***10:30-11:00:** Kinetic models of Europa's exosphere, by *Valery Shematovich***11:00-11:30:** The Europa Global Exospheric Model of Outgoing Neutrals (EGEON), by *Christina Plainaki***11:30-12:00:** Modeling minor atmospheric species, by *Valeria Mangano* and *Christina Plainaki***12:30-14:00: Lunch****14:00-17:30:** Discussion and Work on model comparison*Possible Team-split in sub-groups*

\*\*\*\*\*

**Thursday 4 Dec 2014**

Initial work on model comparison

\*\*\*\*\*

**09:30-12:30:** Continuation of the work on model comparison

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

**14:00-15:30:** Discussion and Overall summary of the model comparison, including:

- Review tables (and/or figures),
- Fact Sheet and Open questions List
- Discussion and Conclusions

**15:30-16:00:** Work on models comparison with Observations

**16:00-17:30:**

Collect material related to **Technical Report TR\_G2\_1 (DEL#5)** summarizing the comparative analysis of the models (coordination by *Tim Cassidy*).

Collect material related to **Supplementary material SM\_G2\_1 (DEL# 6)** --> official **Project Outcome #1**) (coordination by *Valery Shematovich*).

Assignment of possible Action Items for the Team-members (for the next months), related to the model comparison

\*\*\*\*\*

**Friday 5 Dec 2014**

Overall summary and discussion

\*\*\*\*\*

**09:30-12:30: Meeting Summary and Determination of Action Items** for the next months

Discussion on possible peer-reviewed publication(s) related to the Team's work

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

**14:00-16:00:** TBD

@ *Team Members*: Note that during the First Meeting, we will work mainly on the Scientific Objectives G1.1, G1.2, G1.3, G1.4, G2.1, presented in TABLE II of the Science Goals and Deliverables document.

**TABLE II: Team involvement and responsibilities**

Science Objectives	Team members involved	Leading Team member	Deliverable	Expected Project Outcome #
G1.1. Summary of the available UV and VIS observations of Europa's exosphere	Cassidy, Grassi, Radioti, Roth, Plainaki, Saur; <i>Mangano, Retherford Lucchetti</i>	Roth and Saur	DEL#1: TR_G1_1	
G1.2. Summary of the Galileo Radio occultation and Plasma Wave Instrument observations and their implications in Europa's exosphere	Dandouras, Hartogh, Jia, Plainaki, Saur; <i>Retherford Blöcker</i>	Jia	DEL#2: TR_G1_2	
G1.3. Summary of the Cassini/MIMI observations of Europa's extended neutral torus	Dandouras, <i>Milillo</i> , Plainaki	Dandouras	DEL#3: TR_G1_3	
G1.4. Search for potential data sets synergies and assessment of related variability	Cassidy, Dandouras, Grassi, Hartogh, Jia, Radioti, Roth, Plainaki, Saur; <i>Mangano, Retherford Blöcker Lucchetti</i>	Radioti	DEL#4: TR_G1_4	
G2.1. Review of the existing models simulating Europa's exosphere	Cassidy, Jia, Mura, Plainaki, Roth, Saur, Shematovich, Wurz; <i>Mangano, Milillo, Orsini Blöcker Lucchetti</i>	Cassidy	DEL#5: TR_G2_1	
		Shematovich	DEL#6: SM_G2_1	(1)