

Sakura-Jupiter Meeting #3 2016

October 28th 2016, IWF-CEAW, Graz, Austria

Participants

Name	Institute	Note
Baptiste Cecconi	Obs. Paris	Jupiter and Saturn radio emissions Cassini, STEREO, JUICE, NDA... Data sharing interface
Fuminori Tsuchiya	Tohoku U.	Io plasma torus and DAM/HOM
Atsushi Kumamoto	Tohoku U.	litate, Jovian DAM, S-bursts
Chihiro Tao	NICT	1D MHD Propagation model of solar wind
Tomoki Kimura	RIKEN	Hisaki
Kasumasa Imai	Kochi C.	Engineering
Yasumasa Kasaba	Tohoku U.	Bepi / JUICE / Exceed
Corentin Louis	Obs. Paris	ExPRES modeling, DAM emission
Philippe Zarka	Obs. Paris	26 yr catalogue of NDA DAM obs. correlation with Hisaki
Laurent Lamy	Obs. Paris	Radio + UV observations APIS database Nançay NDA science lead

Introduction

Each team will present status and propose actions or work plan for next year.

26 years catalogue of DAM radio emissions from NDA (PZ)

- ☐ Catalogue built by Manillo Marques (PhD). It took 6 months full time. He used interactive software developed by Andrée Coffre, in Nançay.
- ☐ Not an automated process. Simple criteria : max frequency, polarization, shape. This is enough for identification of Io-A/B/C/D or non-Io-A/B/C/D.
- ☐ All parameters are then interpolated on a 1 min. time grid.
- ☐ Paper submitted very soon.
- ☐ Sensitivity = 5 to 10 kJy. Calibration step has been excluded manually.
- ☐ *Actions:*
 - PZ : Look for DAM emission in solar pointing.
 - AK : Increase coverage of catalogue using litate spectrograms. For this: Add litate data reader to Andrée Coffre software.
- ☐ BC: presentation of NDA dataset + CDF display in Autoplot

high time-resolution observation Jovian DAM (AK)

- ☐ Only RH polar
- ☐ Waveform 40 Msps => 120MB/s (0.3 TB/hr)
- ☐ Solar + Jovian Synchrotron : 150 => 500 MHz, 2 polar.
- ☐ Use Radon for detecting slope?
- ☐ High resolution are online (link ?)

- ☐ Observations planning has been added to the Juno schedule, but problem of display in timeline
- ☐ Actions :
 - BC + Renaud Savalle: one line per instrument or different colors grouped by observatory
- ☐ Chihiro modeling in Toulouse or in Tohoku? CT prefers to have it run in Toulouse?

Passive Radar and data sharing(YK)

- ☐ S-bursts duration? (JUICE-passive-radar)
 - PZ: a few ms at given frequency.
- ☐ What about Glenn Orton IRTF ?
 - JPL server on its way. Test server in Meudon available in the meantime?
- ☐ Subaru data from YK will be online with same metadata scheme as IRTF

APIS (LL)

- ☐ APIS presentation material
- ☐ Recently added ISaAC magnetic field model
- ☐ Future obs campaigns planned with Chihiro model. IR from ground: imaging data?
 - YK: planning H3+ and Bracket alpha.
- ☐ Uranus will be at mid point between solstice and equinox next year.

Hisaki (TK)

- ☐ Hisaki observations presented.
- ☐ distrib of L2 data. FITS format (image + ancillary data included)
- ☐ distrib of L3 data (future). Light curve of emission power, reduced from imaging spectral data. FITS format, private for now.

Propagation Model (CT)

- ☐ solar wind in AMDA
- ☐ 1D MHD model from 1UA => Jupiter, Saturn
- ☐ source = ACE / WIND / OMNI. Also STEREO-A beacon data.
- ☐ also Uranus and Neptune
- ☐ Alabama model in support for New Horizon mission
- ☐ Action :
 - CT : validation paper (proposed by LL)
 - CT : confidence level ? (from radial to target angle ?)
 - CT : code update with AMDA team ?

Io-Torus nebula and HOM/DAM (FT)

- ☐ Hisaki example code IDL => level 2 data
- ☐ DAM/HOM compared with Io plasma torus density
- ☐ Jan-Apr 2015: increase Io torus intensity (volcanic activity on Io).
- ☐ HOM from WIND data.
- ☐ 2 events in litate. Use NDA to complete study. BC: Add RadioJVOE-SUG ?
- ☐ Observation of Sodium nebula (Yoneda)

- 🔗 Example of sample code

Splinter APIS (BC, CT, LL, TK)

- 🔗 external query with additional keywords, through EPN-TAP
- 🔗 APIS will ask query through EPN-TAP, get VOTable and display it with API internal data.
- 🔗 Add extra keywords into L2 FITS header
- 🔗 Actions
 - LL+BC : list extra APIS keywords (mainly ephemeris parameters that are not already in EPNcore) + mapping EPNcore / APIS
 - TK : Update Hisaki EPNcore table
 - LL + LESIA eng. : access Hisaki EPNcore table (with APIS extension)

Splinter Io-Torus (AK, CL, FT, KI, PZ)

- 🔗 Period to be observed = Jan. => Mar. 2015
- 🔗 Actions
 - CL : identify Io-DAM arcs in NDA+litate+LWA(?)+RadioJOVE(??) ; fit with ExPRES (« classical » setup : Hess model with lead angles) and derive lead angles
 - KI : fit LWA+NDA with modulation lanes to derive lead angles
 - FT + Yoneda ? : provide sodium nebula / Io torus density
 - All : correlate lead angles with io-torus density
 - Look for multiple arcs and search for correlation with increase of io-torus density

Cubesat JBeam (KI)

- 🔗 cubsat project during hisaki?
- 🔗 Beam: deploy from space station. 7m tip to tip. 20 MHz operation. GPS clock sync.
- 🔗 System = RaspberryPI + RTL-SDR.