MASER: A Science Ready Toolbox for Low Frequency Radio Astronomy

mercredi 21 octobre 2020 13:30 (10 minutes)

MASER (Measuring, Analysing and Simulating Radio Emissions) provides a comprehensive infrastructure dedicated to low frequency radio emissions (typically < 50 to 100 MHz). The four main radio sources observed in this frequency are the Earth, the Sun, Jupiter and Saturn. They are observed either from ground (down to 10 MHz) or from space (down to a few kHz). Ground observatories are more sensitive than space observatories and capture high resolution data streams (up to a few TB per day for modern instruments). Conversely, space-borne instruments can observe below the ionospheric cut-off (10 MHz) and can be placed closer to the studied object.

Several tools have been developed in the last decade for sharing space physcis data. Data visualization tools developed by the CDPP (Centre de Données de la Physique des Plasmas, in Toulouse, France) and the University of Iowa (Autoplot) are available to display and analyse space physics time series and spectrograms. A planetary radio emission simulation software is developed in LESIA (ExPRES: Exoplanetary and Planetary Radio Emission Simulator). The VESPA (Virtual European Solar and Planetary Access) provides a search interface that allows to discover data of interest for scientific users, and is based on IVOA standards (astronomical International Virtual Observatory Alliance). The University of Iowa also develops Das2 that allows to distribute data with adjustable temporal resolution.

MASER is making use of all these tools and standards to distribute datasets from space and ground radio instruments available from the Observatoire de Paris, the Station de Radioastronomie de Nançay and the CDPP deep archive. These datasets include Cassini/RPWS, STEREO/Waves, WIND/Waves, Ulysses/URAP, ISEE3/SBH, Voyager/PRA, Nançay Decameter Array (Routine, NewRoutine, JunoN), RadioJove archive, swedish Viking mission, Interball/POLRAD… MASER also includes a Python software library for reading raw data.

Open access

I authorise the IHDEA to openly distribute my presentation material.

Abstract

I accept that the content of my abstract is present in the book of abstracts.

Online Material

I give my consent to share my material with the conference participants.

Auteurs principaux: CECCONI, Baptiste (LESIA - Observatoire de Paris - PSL); LOH, Alan (LESIA - Observatoire de Paris - PSL); LE SIDANER, Pierre (DIO - Observatoire de Paris - PSL); AICARDI, Stéphane (DIO - Observatoire de Paris - PSL); SAVALLE, Renaud (DIO - Observatoire de Paris - PSL); BONNIN, Xavier (LESIA - Observatoire de Paris - PSL); NGUYEN, Quynh Nhu (LESIA - Observatoire de Paris - PSL); LION, Sonny (LESIA - Observatoire de Paris - PSL); SHIH, Albert (DIO - Observatoire de Paris - PSL); ZARKA, Philippe (LESIA - Observatoire de Paris - PSL); LOUIS, Corentin (IRAP - CNES / CNRS); LAMY, Laurent (LESIA - Observatoire de Paris - PSL); GRIESSMEIER, Jean-Mathias (LPC2E - Univ. d'Orléans); FADEN, Jeremy (University of Iowa); PIKER, Christopher (University of Iowa); ANDRÉ, Nicolas (IRAP - CNRS); ERARD, Stéphane (LESIA - Observatoire de

Paris - PSL); GÉNOT, Vincent (IRAP - CNRS); MAFI, Joseph (UCLA); SHARLOW, Mark (UCLA); SKY, Jim (Radiosky Publishing)

Orateur: CECCONI, Baptiste (LESIA - Observatoire de Paris - PSL)

Classification de Session: Tools & Software