The aim of this workshop is to provide an overview of Space Signals Spectrum Monitoring, for purposes concerning space agencies in the frame of space engineering (including link budget consolidations, regulatory issues, science & earth observation and space operations). Space frequency bands being more and more occupied by unintentional interfering signals, spectral observations in these bands are now quasi-mandatory for space engineering, including the design of new RF air-interfaces using signals transmitted between the earth and satellites (Argos evolutions, GNSS evolutions, new TMTC or TeleMetry systems, new AIS signals, etc …) or the design of scientific passive spaceborne radio observation systems (radiometers, reflectometers, receiver for astronomy,…). The considered Space Signals are therefore signals transmitted from space, or signals received by space platforms for scientific or operational purposes. The considered spectrum monitoring hardwares could be located on earth, airborne, spaceborne,…The presentations shall mainly focus on Space Signals Spectrum Monitoring hardware and software, and related signal processing. The workshop will be free of charge (lunches at IAS).

Each presentation will last 25 minutes maximum, plus 5 minutes maximum for Questions & Answers

Timeline for Space Spectrum Monitoring 2014 :

- Full presentations should be send before the 23 september 2014 to the organisers: jean-luc.issler@cnes.fr or felix.antreich@dlr.de or mario.caporale@asi.it or jose.angel.avila.rodriguez@esa.int or kjell.arne.aarmo@spacecentre.no

- Registrations to attend the workshop have to be made on the following website before the 22 september 2014, through the following web links

http://cct.cnes.fr/content/cct-tsi-space-spectrum-monitoring
PROGRAM  DAY 1 (Thursday 25th of September)

- 9H00-9H25 : Keynote speech : Importance of space signals monitoring at ITU. Jean Pla, CNES, France
- 9H25-9H50 : Goals of civilian spectrum monitoring from space; exemple of CNES civilian missions. Jean-Luc Issler, CNES, France
- 9H50-10H15 : Computing the PSD’s for GNSS Spectrum and how they can be located. A. R. Pratt (Star Trinity Ltd), UK

10H15-10H30 : Coffee break

10H30-12H10 : AIS signals monitoring in VHF

12H10-13H30 : Lunch - Coffee

13H30-15H40 : New Hardwares and technologies

15H40-15H55 : Coffee break

15H55-16H15 : Spectrum measurement/estimations for sources in space

16H10-16H35 : Spectral and Doppler observations of space probes in X-band in the solar system. Bertand Pinel; Castenauardy; France.
- 16H35-17H00 : Interferences occurred during ATHENA-FIDUS and PICARD supports on CNES 2GHz ground station. André Loubatières; CNES ; France
PROGRAM DAY 2 (Friday 26th of September)

**9H00-10H40 : GNSS Spectrum Monitoring**

Co-chairmen: Lionel Ries (CNES/CST), Jose-Angel Avila Rodriguez (ESA)

- **9H00-9H25 :** Detection and Mitigation of Interference for Calibration of Big Dish Antennas, Paola Martinelli; DLR; Germany

- **9H25-9H50 :** Estimation of GNSS Signal Deformation Based on Measurements with a High Gain Antenna, Steffen Thölert; DLR; Germany

- **9H50-10H15 :** GNSS Signal in space monitoring and interface control platform. A. Altieri, M. Gasbarra, Q. Morante, O. Galimberti (Thales Alenia Space), S. Viviano (ASI), R. Bellapadrona (ENAV); Italy

- **10H15-10H40 :** Refitting a large telecommunication antenna for GNSS monitoring; André Gilloire, Lucien Macé, Patrick Lassudrie Duchesne, Hervé Sizun; ORPB (Observation Radio Pleumeur Bodou); France

**10H40-11H00 : Coffee break**

**11H00-12H15 : Analog Digital Converters**

Co-chairmen: Kjell-Arne Aarmo (NSC), Jean-Luc Issler (CNES/CST)


- **11H50-12H15 :** A high dynamic range Stacked ADCs receiver for long wavelength radio astronomy. LESIA. Reda Mohellebi, Hervé Petit, Baptiste Cecconi, H. Fakhoury, Milan Maksimovic et P. Loumeau.

**12H15-13H30 : Lunch - Coffee**

**13H30-15H10 : Space monitoring of signals from space**

Co-chairmen: Kjell-Arne Aarmo (NSC), Paola Martinelli (DLR/IKN)

- **13H30-13H55 :** GOMX-1: Space-based Air Traffic Monitoring Results. Lars K. Alminde, Karl Kaas, Morten Bisgaard, Johan Christiansen, David Gerhardt; Gompspace; Denmark.

- **13H55-14H20 :** MP - a space borne radio spectrum monitoring facility for the detection, characterisation and geo-location of RF emissions. Ramón Nartallo; Qinetiq; UK

- **14H20-14H45 :** RF Spectrum Monitoring – The ElectroMagnetic Monitoring and Analysis (EMMA) Satellite Mission. Franz Newland; Comdev; UK.

- **14H45-15H10 :** Satellite observations of the Cospas-Sarsat 406-406.1 MHz band. Jean Pla; CNES; France

**15H10-15H25 : Coffee break**

**15H25-16H40 : Spectrum measurement Signal Processing**

Jean Pla (CNES/CST), Steffen Thölert (DLR/IKN)

- **15H25-15H50 :** Classification of Digital Linear and Nonlinear Modulations Using Bayesian Methods: Nathalie Thomas, Jean-Yves Tourneret, IRIT/ENSEEIHT/TESA. TESA, France.

- **15H50-16H15 :** Spectrum Sensing and Source Location in Wide-Band Scenarios and Highly-Corruptive Interference Environments. Antonio Napolitano (Department of Engineering, University of Napoli “Parthenope”) Italy; Martial Coulon (Telecommunications & Networks Department, Institut National Polytechnique de Toulouse (INPT) ENSEEIHT), France

- **16H15-16H40 :** Wideband backends and Digital Signal Processing at Nançay Radio observatory. Cedric Viou (CNRS, Nançay Radiotelescope), France

**16H40-17H10 : Round table; conclusions of the workshop**