

ESA GNSS Summer School and ESA GNSS Conference events in 2022

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D/NAV

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Organised by ESA and the Joint Research Centre of the European Commission

Cooperating Universities

- *Stanford University*
- *Institut Supérieur de l'Aéronautique et de l'Espace*
- *Graz University of Technology, Austria*
- *University FAF Munich, Germany*

Local Support: Polish Space Agency

Dates: July 18-29, 2022 in Krakow, Poland

www.esa-jrc-summerschool.org

Knowledge
GNSS Systems
LAB WORK
PNT
INTERNATIONAL
RENOWNED
SCIENTISTS
RESEARCH

Students profile: The program is open to graduate students (recent graduates), Ph.D. candidates, early-stage researchers and young professionals willing to broaden their knowledge. Available seats (~ 50) are given on a first-come, first-served basis.

The **mission** of the ESA-JRC International Summer School on GNSS is to provide the attendees with a **comprehensive overview of satellite navigation**. Extensive lab work is also provided to the attendees with hands-on learning opportunities.

- GNSS FUNDAMENTALS
- IONOSPHERE, TROPOSPHERE AND SPACE WEATHER
- GNSS SIGNALS AND RECEIVERS
- GNSS THREATS AND MITIGATIONS
- OVERVIEW OF GNSS SYSTEMS and SBAS SYSTEMS
- RECEIVER AUTONOMOUS INTEGRITY MONITORING (RAIM, ARAIM)
- GNSS APPLICATIONS OVERVIEW
- GNSS SCIENTIFIC APPLICATIONS
- FUNDAMENTALS ON PROGRAMME MANAGEMENT and BUSINESS CASES PREPARATION
- DEDICATED WORKSHOP LABS
- GNSS APPLICATION STUDY CASES BY STUDENT GROUPS

ESA-JRC INTERNATIONAL SUMMERSCHOOL – STUDENT'S ASSESMENT PREVIOUS EDITIONS



OVERALL EVALUATION:

95% EXCELLENT or VERY GOOD

OVERALL ORGANISATION:

99% EXCELLENT or VERY GOOD

GNSS SCIENTIFIC CONTENT:

97% EXCELLENT or VERY GOOD





NAVITEC 2022

4 – 8 April 2022 | ESA-ESTEC | Noordwijk | The Netherlands

TRACK-1: Navigation in Space and Science

Track chairs: Oliver Montenbruck and Javier Ventura

Track-2: Advanced User Algorithms for PNT

Track chairs: Thomas Pany and Jose Antonio Garcia Molina

Track 3: PNT resilience and security

Track chairs: Todd Humphreys and Gianluca Caparra

Track 4: Integrity and High-accuracy

Track chairs: Jan Wendel, Christian Wullems and Jaron Samson

Track 5: Space-based PNT systems and signals

Track chairs: John Betz, Jose Angel Avila Rodriguez and R.Prieto





The colloquium focuses on four major areas of research:

- Scientific applications in meteorology, geodesy, geophysics, space physics, oceanography, land surface and ecosystem studies, using either direct or reflected signals, differential measurements, phase measurements, radio occultation measurements, using receivers placed on the ground, in aircraft or on satellites.
- Scientific developments in physics, dealing with future GNSS, particularly in testing fundamental laws in astronomy and in quantum communication. Relativistic reference frames and relativistic positioning will be addressed.
- Aspects of metrology such as reference frames, onboard and ground clocks, and precise orbit determination.
- Scientific aspects of satellite navigation and positioning such as signal propagation, tropospheric and ionospheric corrections and the means to model and mitigate multipath and interference.
- Space applications and Lunar Navigation

14-16 September 2022

Sofia University "St. Kliment Ohridski"
Sofia, Bulgaria