IAU Commission A2
Rotation of the Earth

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Commission A2 Business Meeting

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About the IAU

The International Astronomical Union (IAU) was founded in 1919. Its mission is to promote and safeguard the science of astronomy in all its aspects through international cooperation. Its individual members — structured into Divisions, Commissions, and Working Groups — are professional astronomers from all over the world, at the Ph.D. level and beyond, who are active in professional research and education in astronomy. The IAU has 12377 members. The Individual Members Directory contains 9828 names in 101 countries worldwide (These Individual Members are labeled as "active" in the IAU database: they have a valid, public email, and are affiliated to at least one Division.). Of those 79 are National Members. In addition, the IAU collaborates with various scientific organizations all over the world.

The long-term policy of the IAU is defined by the General Assembly and implemented by the Executive Committee, while day-to-day operations are directed by the IAU Officers. The focal point of its activities is the IAU Secretariat, hosted by the Institut d'Astrophysique de Paris, France. The scientific and educational activities of the IAU are organized by its 9 Scientific Divisions and, through them, its 35 specialized Commissions covering the full spectrum of astronomy, along with its 55 Working Groups.

The key activity of the IAU is the organization of scientific meetings. Every year the IAU sponsors nine international IAU Symposia. The *IAU Symposium Proceedings* series is the flagship of the IAU publications. Every three years the IAU holds a General Assembly, which offers six IAU Symposia, some 15 Focus Meetings, and individual business and scientific meetings of Divisions, Commissions, and Working Groups. The proceedings of Focus meetings are published in the *Astronomy in Focus* series. The triennial reports of the Divisions and Commissions are published in the *Transactions of the IAU* - A series.The reports of the GA business meetings are published in the *Transactions of the IAU* - B series.

Among the other tasks of the IAU are the definition of fundamental astronomical and physical constants; unambiguous astronomical nomenclature; promotion of educational activities in astronomy; and informal discussions on the possibilities for future international large-scale facilities. Furthermore, the IAU serves as the internationally recognized authority for assigning designations to celestial bodies and surface features on them.

https://www.iau.org/administration/about/

Divisions

Activities in the various astronomical sub-disciplines are mostly coordinated through the IAU Divisions.

Following the adoption of the Executive Committee Resolution at the XXVIIIth General Assembly held in Beijing, a new Division scheme has been put into place, to take into account the evolution of astronomy and to reflect the scientific policy of the IAU.

These Divisions will include one or more IAU Commissions, each focusing on a narrower scientific or organizational theme. The relation between the existing Commissions and the new Divisions will be gradually established in the coming months.

The list of Divisions adopted in Beijing is as follows:

- Division A Fundamental Astronomy
- Division B Facilities, Technologies and Data Science
- Division C Education, Outreach and Heritage
- Division D High Energy Phenomena and Fundamental Physics
- Division E Sun and Heliosphere
- Division F Planetary Systems and Bioastronomy
- Division G Stars and Stellar Physics
- Division H Interstellar Matter and Local Universe
- Division J Galaxies and Cosmology

https://www.iau.org/science/scientific_bodies/divisions/

Division A Fundamental Astronomy

Commissions

The work towards the scientific goals of Division A is supported by its organizations structure that currently include 3 Division A Commissions, 1 Inter-Division Commission and 1 Cross-Division Commission:

A1	**Astrometry**	IAU Webpage	Parent Division A	Members	
A2	**Rotation of the Earth**	IAU Webpage	Parent Division A	Members	
A3	**Fundamental Standards**	IAU Webpage	Parent Division	Members	External Webpage
A4	**Celestial Mechanics and Dynamical Astronomy**	IAU Webpage	Inter-Division (A-F); Primary Division: A	Members	
X2	**Solar System Ephemerides**	IAU Webpage	Cross-Division: A-F	Members	

https://www.iau.org/science/scientific_bodies/divisions/A/info/commissions/

A2 – Commission A2 Rotation of the Earth

Description

Earth rotation is an interdisciplinary topic that bridges astronomy and geodesy. Precise knowledge of the Earth's rotation and its variations is needed for positioning and navigating objects on Earth and in space. And the analysis of Earth rotation variations provides important information about interactions between the various components of the Earth system and about global change phenomena.

The objectives of Commission A2 on Rotation of the Earth are to:

1. Encourage and develop cooperation and collaboration in observation and theoretical studies of Earth orientation variations (the motions of the pole in the terrestrial and celestial reference systems and rotation about the pole).
2. Serve the astronomical community by linking it to the official organizations that provide the International Terrestrial and Celestial Reference Systems/Frames (ITRS/ITRF and ICRS/ICRF) and Earth orientation parameters (EOP): International Association of Geodesy (IAG), International Earth Rotation and Reference Systems Service (IERS), International VLBI Service for Geodesy and Astrometry (IVS), International GNSS Service (IGS), International Laser Ranging Service (ILRS), International DORIS Service (IDS).
3. Develop methods for improving the accuracy and understanding of Earth orientation variations and related reference systems/frames.
4. Ensure agreement and continuity of the reference frames used for studying Earth orientation variations with other astronomical reference frames and their densification.
5. Provide means of comparing observational and analysis methods and results to ensure accuracy of data and models and encourage the development of new observation techniques.

The Commission meets its objectives by fostering research and discussion on Earth rotation and reference frames, by organizing topical symposia and workshops, and by forming relevant Working Groups.

https://www.iau.org/science/scientific_bodies/commissions/A2/

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A2 – Commission A2 Rotation of the Earth

Organizing Committee

Richard Gross (President)
Florian Seitz (Vice-President)
Alberto Escapa (Secretary)
Zinovy M. Malkin (as IAG Representative to IAU)
Oleg A. Titov (as IVS Representative to IAU)
Jose Manuel Ferrándiz
Daniela Thaller
Vladimir E. Zharov

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Members (95)

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Bizouard, Christian	Blakeslee, John	Boehm, Johannes
Bourda, Geraldine	Brosche, Peter	Brumberg, Victor
Brzeziński, Aleksander	Campbell, Robert	Capitaine, Nicole
Cefola, Paul	Chao, Benjamin	Chapanov, Yavor
Charlot, Patrick	Damljanovic, Goran	De Biasi, Maria
Defraigne, Pascale	Dehant, Véronique	Dick, Wolfgang
Dickman, Steven	Elipe, Antonio	Escapa, Alberto
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Getino Fernández, Juan	Gordon, David	Gross, Richard
Gusev, Alexander	Hennessy, Gregory	Hobiger, Thomas
Hohenkerk, Catherine	Huang, Cheng-Li	Ishchenko, Maryna
JIN, Shuanggen	JIN, WenJing	Jovanovic, Bora
Khoda, Oleg	Kosek, Wiesław	Koshelyaevsky, Nikolay
KOYAMA, Yasuhiro	LU, Chunlin	Lucchesi, David

Luzum, Brian	Ma, Chopo	Malkin, Zinovy
MASAKI, Yoshimitsu	Matsakis, Demetrios	McCarthy, Dennis
Morrison, Leslie	Müller, Jürgen	Nastula, Jolanta
Nilsson, Tobias	Nothnagel, Axel	Osório, Isabel
Owis, Ashraf	Pang, Kevin	Paquet, Paul
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Sevilla, Miguel	SHU, Fengchun	Sidore'nkov, Nikolay
Souchay, Jean	Steigenberger, Peter	Tapley, Byron
Thaller, Daniela	Thomas, Maik	Titov, Oleg
Vondrak, Jan	Wallace, Patrick	WANG, Guangli
Yatskiv, Yaroslav	YU, Nanhua	ZHANG, Mian
Zharov, Vladimir	ZHOU, Yonghong	

https://www.iau.org/science/scientific_bodies/commissions/A2/members/

Commission A2 WG Theory of Earth Rotation and Validation (IAU / IAG Joint WG)

Description

Purpose:

To promote the development of theories of Earth rotation that are fully consistent and that agree with observations and provide predictions of the Earth orientation parameters (EOPs) with the accuracy required to meet the needs of the near future as recommended by, e.g., GGOS, the Global Geodetic Observing System of the International Association of Geodesy (IAG).

Justification:

Recent efforts have not led to improvements in the accuracy of theoretical models of the Earth's rotation that approach the required millimeter level, so there is a strong need to develop such theories to meet the current and future accuracy of the observations and trying to improve predictions.

Terms of Reference:

1. A main objective of the Working Group (WG) is to assess and ensure the level of consistency of EOP predictions derived from theories with the corresponding EOPs determined from analyses of the observational data provided by the various geodetic techniques. Consistency must be understood in its broader meaning, referring to models, processing standards, conventions etc.

2. Clearer definitions of polar motion and nutation are needed for both their separation in observational data analysis and for use in theoretical modeling.

3. Theoretical approaches must be consistent with IAU and IAG Resolutions concerning reference systems, frames and time scales.

4. Searching for potential sources of systematic differences between theory and observations is encouraged, including potential effects of differences in reference frame realization.

5. The derivation of comprehensive theories accounting for all relevant astronomical and geophysical effects and able to predict all EOPs is sought. In case more than one theory is needed to accomplish this, their consistency should be ensured.

6. There are no a priori preferred approaches or methods of solution, although solutions must be suitable for operational use and the simplicity of their adaptation to future improvements or changes in background models should be considered.

7. The incorporation into current models of corrections stemming from newly studied effects or improvements of existing models may be recommended by the JWG when they lead to significant accuracy enhancements, validated by comparisons with determined EOP.

https://www.iau.org/science/scientific_bodies/commissions/A2/

Scientific Meetings

2015–2018

Geodesy, Astronomy and Geophysics in Earth Rotation (GAGER2016)– A Joint IAU / IAG / IERS Symposium

2016.7.19–2016.7.23

http://gager2016.sgg.whu.edu.cn

Hosted by School of Geodesy and Geomatics, Wuhan University, China

Journées des Systèmes de Référence et de la Rotation Terrestre

"Furthering our knowledge of Earth Rotation"

https://web.ua.es/journees2017/photo/groupPhoto.pdf

Hosted by University of Alicante, Alicante, Spain

September 25–27, 2017

http://astronomy2018.univie.ac.at/poster/

Division Days

Friday, August 24, 2018
Monday, August 27, 2018

Two Sessions:

(1) Reference Systems and Frames
(2) Gaia

Reference Systems & Frames

Conveners

Richard Gross, NASA Jet Propulsion Laboratory
Catherine Hohenkerk, HM Nautical Almanac Office

Invited Presentations

Zuheir Altamimi on ITRF2014
Patrick Charlot on ICRF3
Francois Mignard on Gaia DR2 frame
Robert Heinkelmann on TRF/CRF/EOP consistency

Scientific Meetings

2018–2021

The Earth's Time Varying Rotation: A Centennial Celebration

A Proposed IAU Symposium for 2019

Dates: October 7–11, 2019 (5 days)

Location: Brussels, Belgium

Coordinating Division: Division A Fundamental Astronomy

Other Divisions: None

Scientific Organizing Committee Co-Chairs:
Richard Gross, Jet Propulsion Laboratory, California Institute of Technology, USA
Chengli Huang, Shanghai Astronomical Observatory , China Nanjing
Daniela Thaller, Bundesamt für Kartographie und Geodäsie, Germany

Scientific Organizing Committee Members:
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Patrick Charlot, Université de Bordeaux, France
Veronique Dehant, Observatoire royal de Belgique, Belgium
Alberto Escapa, Universidad de León, Spain
Jose Ferrándiz, Universidad de Alicante, Spain
Catherine Hohenkerk, HM Nautical Almanac Office, United Kingdom
Zinovy Malkin, Pulkovo Observatory, Russian Federation
Harald Schuh, GeoForschungsZentrum Potsdam, Germany
Florian Seitz, Technische Universität München, Germany
Oleg Titov, Geoscience Australia, Australia
Vladimir Zharov, Sternberg Astronomical Institute, Russian Federation

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thank you
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감사합니다
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