



COSPAR BRIEFING TO SPACE STUDIES BOARD 185TH MEETING

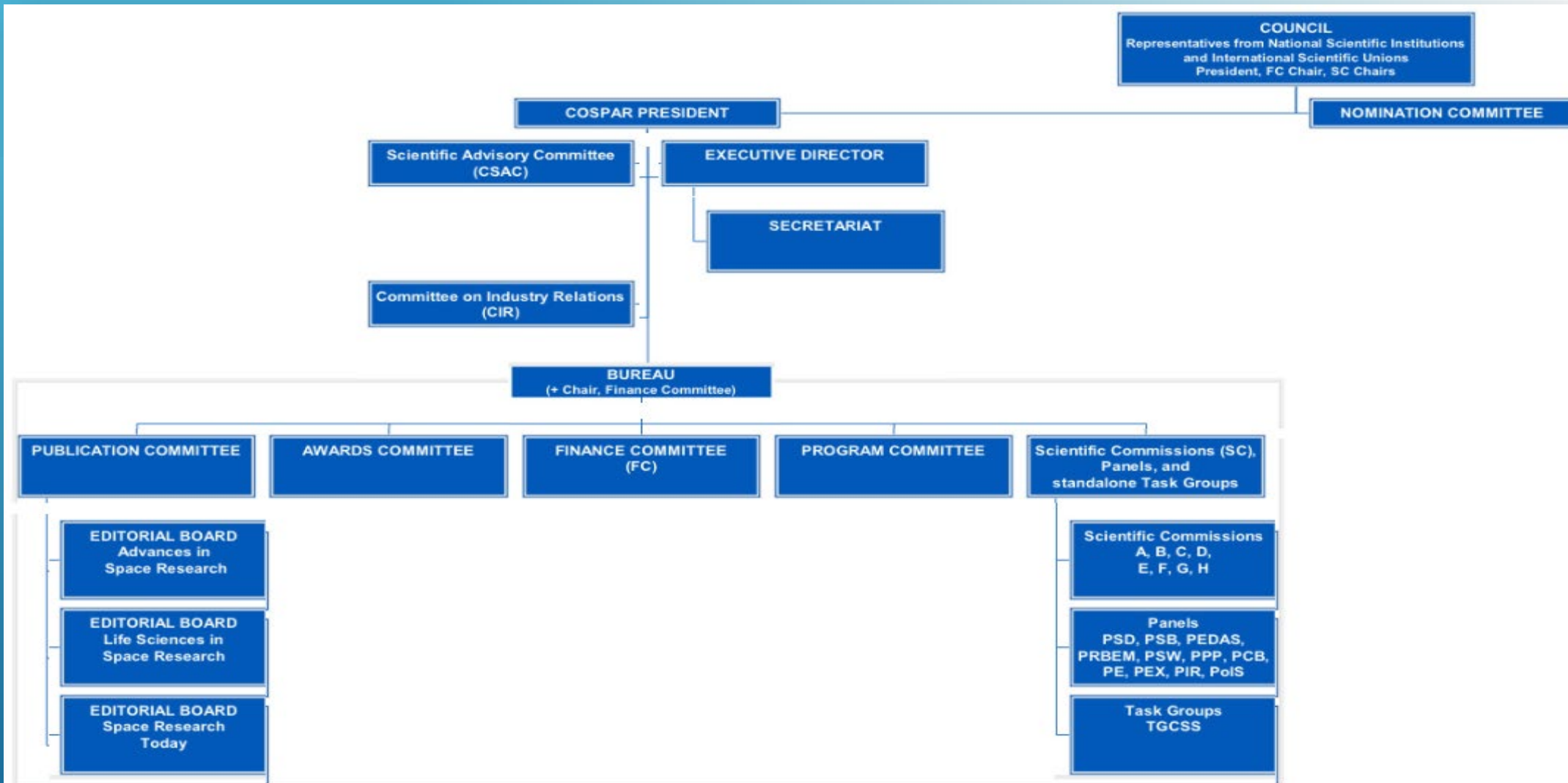
Jean-Claude WORMS
COSPAR Executive Director



CREATED AT THE DAWN OF THE SPACE
AGE TO OFFER A **NEUTRAL FORUM** FOR
SPACE SCIENTISTS WORLD-WIDE







GOVERNANCE STRUCTURE

National Scientific Institutions

and their representatives to COSPAR

NB : The most direct contact information for National Representatives is not usually that indicated below for National Scientific Institution Members. Messages for Representatives may be forwarded through the COSPAR Secretariat.



COSPAR IN THE USA



UNITED STATES

National Academies of Sciences, Engineering and Medicine
2101 Constitution Ave., NW, Washington, DC 20418

Tel: +1 (202) 334 2000 - Space Studies Board NAS/NRC Keck Center 500 Fifth Street, NW, Washington, DC 20001
3477, Fax: +1 (202) 334 3701, www.nationalacademies.org/ssb

Website : [National Academies of Sciences, Engineering and Medicine](http://www.nationalacademies.org/ssb)

Representative : Vassilis Angelopoulos

Further information : [Space Studies Board](http://www.space-studies-board.org/)

National Reports to COSPAR : <http://history.nasa.gov/presrep.html>

National Committee Membership :

Chair:

Margaret Kivelson

Vice-Chair:

James H. Crocker

Representative:

Vassilis Angelopoulos

Space Studies Board Director, COSPAR Contact Point, and National Committee Executive Secretary:
Colleen Hartman

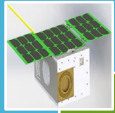


SC	Topics covered	Chair
A	Space Studies of the Earth's Surface, Meteorology and Climate	Ralph Kahn (USA)
B	Space Studies of the Earth-Moon System, Planets, and Small Bodies of the Solar System	Hajime Yano (Japan)
C	Space Studies of the Upper Atmospheres of the Earth and Planets Including Reference Atmosphere	Andrew Yau (Canada)
D	Space Plasmas in the Solar System, including Planetary Magnetospheres	Nicole Vilmer (France)
E	Research in Astrophysics from Space	Tomaso Belloni (Italy)
F	Life Sciences as Related to Space	Tom K. Hei (USA)
G	Materials Sciences in Space	Marc Avila (Germany)
H	Fundamental Physics in Space	Manuel Rodrigues (France)

SCIENTIFIC COMMISSIONS



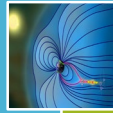
PANEL	Chair
Technical Panel on Satellite Dynamics (PSD)	Heike PETER (Germany)
Panel on Technical Problems related to Scientific Ballooning (PSB)	Mattias ABRAHAMSSON (Sweden)
Panel on Potentially Detrimental Activities in Space (PEDAS)	Carolin FRUEH (USA)
Panel on Radiation Belt Environment Modeling (PRBEM)	Yoshizumi MIYOSHI (Japan)
Panel on Space Weather (PSW) – hosting ISWAT	Maria KUZNETSOVA (USA)
Panel on Planetary Protection (PPP) – works with CoPP	Athena COUSTENIS (France)
Panel on Capacity Building (PCB)	Carlos GABRIEL (Spain)
Panel on Education (PE)	Rosa DORAN (Portugal)
Panel on Exploration (PEX)	John RUMMEL (USA)
Panel on Interstellar Research (PIR)	Ralph McNUTT (USA)
Panel on Space and Social Sciences and Humanities (PSSH)	Isabelle SOURBES-VERGER (France)
Panel on Innovative Solutions (PoIS)	Eric SMITH (USA – Lockheed Martin)
Task Group on establishing a Constellation of Small Satellites (TGCSS) Sub-group on Radiation Belt Sub-group on Atmosphere Sub-group on ionospheric studies	Daniel BAKER (USA) Ji WU (China) Mohammed MEFTAH (France) Amal Chandran (Singapore)
Task Group on Establishing an International Geospace Systems Program (TGIGSP)	Larry KEPKO (USA)
Task Group on Global Climate Change (TG2C2) - starting	Jérôme BENVENISTE (France)



Small Satellites

• TGCSS

- Developing a constellation of small satellites for science
- Interest expressed in NASA, Asia, Europe [VIDEO](#)
- COSPAR-INSPIRE partnership [LINK](#)
- Upcoming international call for ideas
- Support from Chinese launch firm



Space Weather

• PSW

- Panel on SW enables the development of predictive forecasting techniques
- Active international network coordination (e.g. [ISWAT](#))
- Update to SW COSPAR Roadmap [LINK](#)
- All SW relevant partners world-wide are contributing



Innovative Solutions

• PoIS

- New panel created in early 2021 [LINK](#)
- Chaired by Eric Smith (Lockheed Martin)
- Forum for COSPAR Associates to present and discuss new technologies for research
- 3 sessions in Athens Assembly (07/22)



Planetary Protection

• PPP

- Provides accepted guidelines on planetary protection requirements to guide compliance with the UN OST of 1967
- Recent evolution of the panel [LINK](#) membership (scientists from COSPAR Commissions, and space agencies)



Social Sciences and Humanities

• PSSH

- Establish a dialogue with SSH scholars
- Chair: Isabelle Sourbès-Verger (CNRS)
- Give a role to COSPAR in line with current challenges in term of their interaction with society at large
- New project: sustainability of space exploration



SOME PANEL ACTIVITY EXTRACTS

- ▶ TGCSS – Establishing a Constellation of Small Satellites
 - ▶ stems from COSPAR Strategic Plan
 - ▶ 3 sub-groups: ionosphere, **radiation belt**, and atmospheric remote sensing
- ▶ TGIGSP – Establishing an International Geospace Systems Program
 - ▶ Has just started its work, chaired by Larry Kepko (USA)
 - ▶ Coordinated effort to define science objectives to study the Earth's magnetosphere as a 'System of Systems'
 - ▶ Builds on ISTP, feeds into all agencies future programs through a COSPAR roadmap, and into US upcoming heliophysics Decadal Survey

A FOCUS ON TWO TASK GROUPS

▶ TG2C2 – Climate Change

- ▶ Acting Chair: Jérôme Benveniste (Vice-Chair SC A, ESA)
- ▶ Task Group under development
- ▶ Not duplicate work done elsewhere
- ▶ Showcase contribution and solutions from space

THE BIGGEST CHALLENGE: CLIMATE CHANGE!



Company	CIR Member(s)
Airbus	Helene Boithias , Director, Science Institutional Business
Arianespace	Aaron Lewis , VP Corporate Communications & Government Relations
BAE Systems	Julian Cracknell , Group Chief Technology Officer
Ball Aerospace	Mike Gazarik , VP, Space Systems LaNetra Tate , Director of Technical Engineering Operations
Blue Origin	Steve Squyres , Chief Scientist
Fleet Technologies	Flavia Tata Nardini , CEO and Co-founder
Korean Aerospace Industries (KAI)	Chang Han Lee , Director and Head of Space Business
Northrup Grumman	Steve Krein , Vice President Commercial Civil Programs
Lockheed Martin	Nelson Pedreiro , VP Advanced Technology Center Mary Snitch , BD Principal
Planet Labs	Robbie Schingler , Co-Founder Tanya Harrison , Director, Strategic Science Initiatives
Raytheon Intelligence & Space	Anthony Bush , Sr. Director, Environmental Intelligence and Civil Space
Redwire Space	Mike Gold , EVP Civil Space and External Affairs
Rocket Lab	Peter Beck , Founder/CEO Andrew Bunker , VP Gov. Ops. and Bus. Strategy Morgan Bailey , Dir. Comms.
Thales Alenia Space (France)	Christophe Valorge , CTO
Thales Alenia Space (Italy)	Massimo Comparini , Dep. CEO, SEVP-Observation, Exploration, Navigation
United Launch Alliance	Tory Bruno , CEO John Reed , Chief Technologist, Adv. Programs Brandon Eden , Dir. Washington Ops.
Virgin Galactic	Sirisha Bandla , VP, Government Affairs and Research Operations
Voyager	Eric Stallmer , EVP, Government Affairs and Public Policy

COSPAR COMMITTEE ON INDUSTRY RELATIONS



CIR Led/Sponsored Activities

- ▶ ***Engaging Global Space Industry Stakeholders*** – CIR Presentation – Sunday, July 17

Presenter: Dr. Nelson Pedreiro, Lockheed Martin

- ▶ ***Webb's Journey to First Images: Pursuing the Earliest Light in the Universe*** – JWST Panel – Monday, July 18

Moderator: Mark Lewis, Lockheed Martin Communications

Panelists: Dr. Thomas Zurbuchen, NASA

Dr. Alison Nordt, Lockheed Martin

Mr. Gus Makrygiannis, Northrop Grumman

Dr. Makenzie Lystrup, Ball Aerospace

Dr. Rachel Osten, Space Telescope Institute;

INDUSTRY AT 44TH SCIENTIFIC ASSEMBLY (ATHENS)



CIR Led/Sponsored Activities (cont.)

- ▶ *Enriching Scientific Discovery through Inclusion, Diversity, Equity and Accessibility – IDEA for Today and Tomorrow* – Workshop – Tuesday, July 19

Moderator: Mary Snitch, Lockheed Martin & COSPAR IDEA Coordination Officer

Panelists: Dr. Pascale Ehrenfreund, IAF

Dr. Jean Yves Le Gall, Past Head, CNES

Gen. Larry James, Deputy Director, JPL

Mr. Billy Williams, EVP Diversity, Ethics & Inclusion, AGU

Dr. Michael Moloney, CEO, AIP

Ms. Kathryn Lueders, AA Space Operations Mission Directorate, NASA

INDUSTRY AT 44TH SCIENTIFIC ASSEMBLY (ATHENS)

- ▶ Define roadmap to achieve Inclusion, Diversity, Equity and Accessibility (IDEA) across the entire organization and its membership, and enhance corresponding work, with two short-term objectives
 - ▶ Promoting diversity and gender equality in all of its activities, and fight any form of discrimination or harassment.
 - ▶ Continue to encourage meaningful roles in all activities for younger scientists
- ▶ Appointment of an IDEA Coordination Officer
 - ▶ Set up new IDEA Task Group
 - ▶ Events in COSPAR 2022 in Athens (sponsored by JPL, Lockheed)



IDEA AT COSPAR



- ▶ Small satellites for space science, October 2019
- ▶ Observation and integrated Earth-system science – a roadmap for 2016-2025, May 2016
- ▶ Understanding space weather to shield society, June 2015
currently being updated
- ▶ Future of Space Astronomy – a global roadmap for the coming decades, July 2012
- ▶ Toward a Global Space Exploration Program, a stepping-stone approach, January 2012

COSPAR SCIENTIFIC ROADMAPS

A FORUM FOR 64 YEARS, SO WHAT'S NEW?

- ▶ Maintain the traditional neutral forum for scientists to freely exchange on scientific matters (current war in Ukraine)
- ▶ Grow the membership base, to gather all space-faring nations and entities world-wide – the « COSPAR World »
- ▶ Enhance support and capacity-building to researchers and accessing nations – consolidate the Capacity Building Alumni
- ▶ Expand the relations with industry to cater for science needs and ensure concerns are shared and addressed jointly
- ▶ Develop the partnership existing since 1962 with UNCOPUOS to encompass matters of relevance to the new space landscape

BEYOND THE « CLASSICAL » MISSION OF COSPAR

CURRENT AND FUTURE CHALLENGES



► Planetary Protection

- Critical issue today, with involvement of new industrial actors (New Space)
- NASA's Gateway initiative and Artemis Accords led us to reconsider Category 2 for the Moon (June 2021)
- Several policy updates in past few years, despite rumors...
- Ongoing discussion to potentially update guidelines for Mars and icy moons

SOME ISSUES THAT ARE BECOMING CRITICAL...

- ▶ Space debris and light pollution from constellations
 - ▶ Issues bound to increase in magnitude with New Space constellations (10k+)
 - ▶ Science community's response (IAU) and role of COSPAR

SOME ISSUES THAT ARE BECOMING CRITICAL...

- ▶ Sustainability of space exploration (and resource exploitation?)
 - ▶ « Mars is a free planet » statement...
 - ▶ Can COSPAR do something alongside its PPP activities, what and how?
 - ▶ New interdisciplinary discussion between several COSPAR entities (PPP, PEX, PEDAS, PSSH, Commission B)

The Three Laws of Space Exploration ¶

[Jean-Claude Worms, Executive Director of COSPAR, <https://orcid.org/0000-0002-0851-7341>] ¶

A changing landscape ¶

Zeroth Law. → Space exploration agents must endeavour to protect humanity and scientific progress. ¶

First Law. → Space exploration agents must not degrade the environment of a planetary body or region or, through ineffective protection measures or inaction, allow the environment to be degraded, except where this would conflict with the Zeroth Law. ¶

Second Law. → Space exploration agents must endeavour to extend the boundaries of knowledge about the Universe by means of robotic or human exploration of space, except when such means would conflict with the Zeroth or First Law. ¶

Third Law. → Space exploration agents must protect their exploration assets and means, except when such protection would conflict with the Zeroth, First or Second Law. ¶

SOME ISSUES THAT ARE BECOMING CRITICAL...

- ▶ New President 2022-2026: Professor Pascale EHRENFREUND (Austria)
- ▶ New Strategy
 - ▶ Strategic Plan initiated under Len Fisk, covers the period 2019-2023 (98% complete)
 - ▶ New strategic planning exercise: June 2023



NEW ERA

THANK YOU VERY MUCH



<https://cosparhq.cnes.fr>



Committee on Space
Research - COSPAR



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@CosparHQ



Committee on Space Research



COSPAR



COSPAR 2024
45th Scientific Assembly
July 13-21 2024, BEXCO, Busan, Korea