



COSPAR – a Platform for international cooperation in space research

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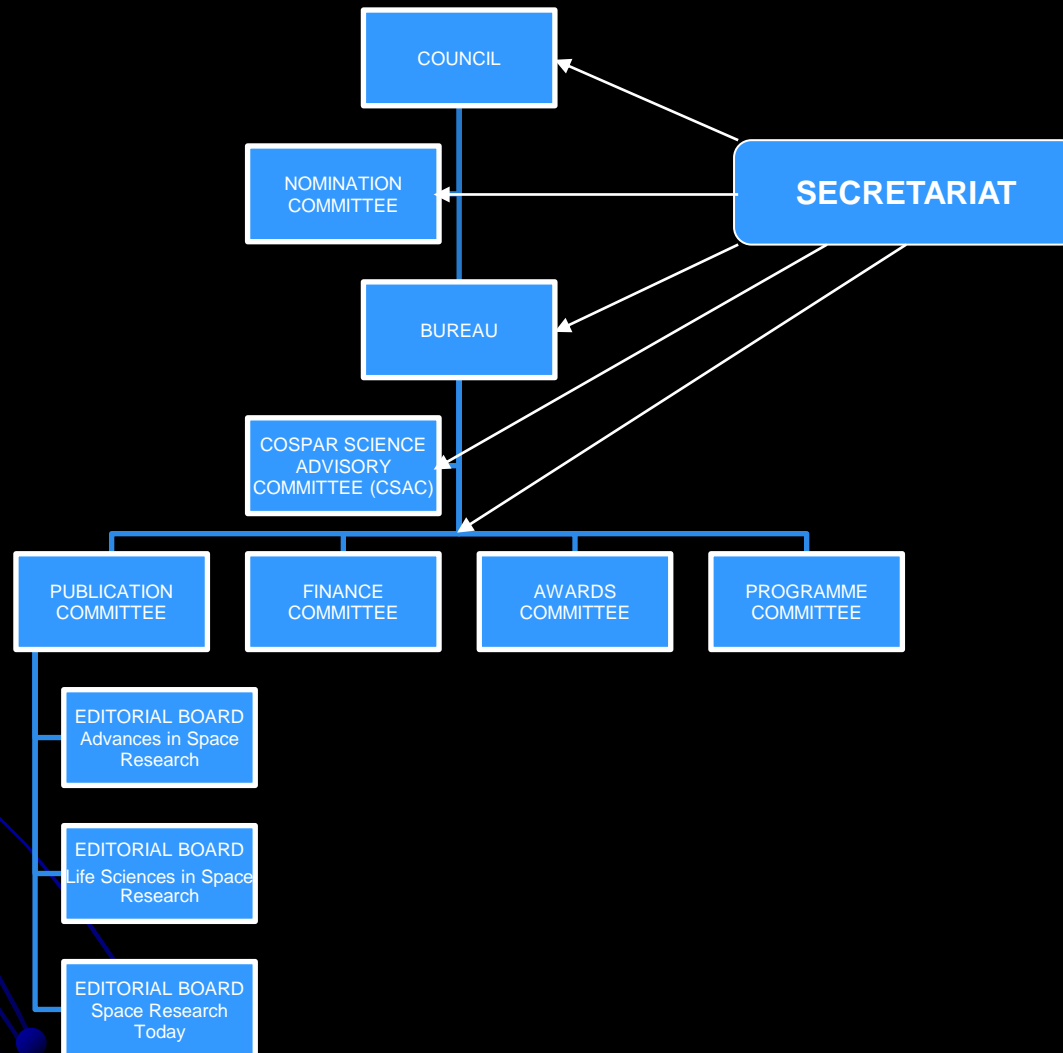


COSPAR, a platform for international cooperation in space

- **The Committee on Space Research (COSPAR) was established by the International Council for Science (ICSU) in 1958.**
 - *From its inception COSPAR's primary goal was to "provide the world scientific community with the means whereby it may exploit the possibilities of satellites and space probes of all kinds for scientific purposes, and exchange the resulting data on a cooperative basis."*
 - *In 2014 COSPAR is an ICSU interdisciplinary body – and an Association according to the French law*



COSPAR Governance





COSPAR Membership

- **Members**

- *Forty-six National Scientific Institutions and thirteen International Scientific Unions are members of COSPAR*
 - Membership implies rights and duties (including a moderate yearly fee based on a balanced scale of contributions, from ~€2,000 to ~€22,000). Three members are currently suspended, for not having paid their dues for more than three years

- **Associated Supporters**

- *Eight private and public entities are Associated supporters*

- **Associates**

- *Over 9,000 scientists worldwide are “**COSPAR Associates**”, affiliated to one to three of its eight Scientific Commissions*



The COSPAR Council

- The Council is composed of (up to) 77 people
 - *Representatives of National Scientific Institutions (46)*
 - *Representatives of International Scientific Unions (13)*
 - *Bureau members and Finance Committee Chair (10)*
 - *Scientific Commission Chairs (8)*
- The Council meets at least every two years, generally during Assemblies
- The Council elects the President and the Bureau, adopts/amends the by-laws, and decides on any matter pertaining to COSPAR



The COSPAR Bureau



Prof. Giovanni Bignami, a renowned astronomer, is the President of COSPAR

- **The Bureau is composed of nine members, elected for 4 years (renewable once)**
 - *G. Bignami (Italy), President*
 - *J. Wu (China), Vice-Pres.*
 - *R. Lin (USA), Vice-Pres. (†)*
 - *I.S. Batista (Brazil)*
 - *K.H. Glassmeier (Germany)*
 - *A. Jayaraman (India)*
 - *S. Sasaki (Japan)*
 - *J.-P. St-Maurice (Canada)*
 - *L. Zelenyi (Russia) - term ends*



CSAC – The COSPAR Scientific Advisory Committee

- The CSAC is chaired by Lennard Fisk (Vice-chair J.-P. Swings)
- Membership includes selected scientists, the COSPAR President, Vice-presidents, and Scientific Commission Chairs
- Terms of reference:
 - *Review the evolution of space research*
 - *Compile the visions of the main space organizations*
 - *Review how COSPAR could better fulfill its mission*
 - *Analyze and suggest new approaches to international cooperation*
 - *Analyze the way COSPAR executes its vision and suggest improvements/modifications to its structure and the possible setting of new tools*





The COSPAR Secretariat

- The COSPAR Secretariat offices are conveniently hosted in the French space agency (CNES) building located in Paris, France
- The Secretariat is responsible for the daily operation of COSPAR. The Secretariat provides support to the Council, the Bureau, and other subsidiary bodies. In particular, the Secretariat helps the host country in preparing the Assembly.
- The Secretariat is composed of three staff:
 - *An Executive Director (Dr. J.-L. Fellous)*
 - *An Assistant Director (Mr. Aaron Janofsky)*
 - *An Administrative Assistant (Ms. Leigh Fergus)*



COSPAR Scientific Structure

- **Eight Scientific Commissions**
 - *Covering all fields of space research (Earth, planets, ionosphere, magnetosphere and heliosphere, astrophysics, life and material sciences, fundamental physics)*
- **Ten technical Panels on a variety of topics**
 - *From planetary exploration and planetary protection to space weather, scientific ballooning, satellite dynamics, radiation belts, and capacity building*
- **COSPAR also hosts several specialized working groups, including a “Working Group on GEO”, the Group on Earth Observations (of which the Committee is a Participating Organization)**



COSPAR Scientific Commissions

SC		Chair
A	Space Studies of the Earth's Surface, Meteorology and Climate	<i>N. Gobron (EC)</i>
B	Space Studies of the Earth-Moon System, Planets, and Small Bodies of the Solar System	O.I. Korablev (Russia)
C	Space Studies of the Upper Atmospheres of the Earth and Planets Including Reference Atmospheres	T. Nakamura (Japan)
D	Space Plasmas in the Solar System, Including Planetary Magnetospheres	K. Scherer (Germany)
E	Research in Astrophysics from Space	P. Ubertini (Italy)
F	Life Sciences as Related to Space	G. Reitz (Germany)
G	Materials Sciences in Space	<i>V. Shevtsova (Belgium)</i>
H	Fundamental Physics in Space	N.N.



What is the role of Scientific Commissions?

- **General responsibilities of Scientific Commissions**
 - *To discuss, formulate and coordinate internationally cooperative experimental investigations in space;*
 - *To encourage interactions between experimenters and theoreticians, in order to maximize space science results, especially interpretation arising out of analyses of the observations;*
 - *To stimulate and coordinate the exchange of scientific results;*
 - *To plan symposia and topical meetings for discussion of the results of space research, with an appropriate mixture of review and contributed papers; and,*
 - *To carry out these tasks in the closest possible association with other organizations interested in these and related tasks.*



How do Scientific Commissions work?

- Each SC is subdivided into Sub-Commissions
 - *Commissions and Sub-Commissions elect a Chair and up to three Vice-Chairs for 4 years renewable once*
- They hold “*Open* Business Meetings” during each Assembly, where
 - *The officers are elected (with due consideration of scientific expertise, geographic and gender balance)*
 - *The program of the next Assembly is elaborated and discussed*
 - *Any other topic of interest may be discussed*
- Commission Officers have rights *and* duties
 - *Commission Chairs have the right to vote in the Council and must report to the CSAC and Council on matters pertaining to their discipline*



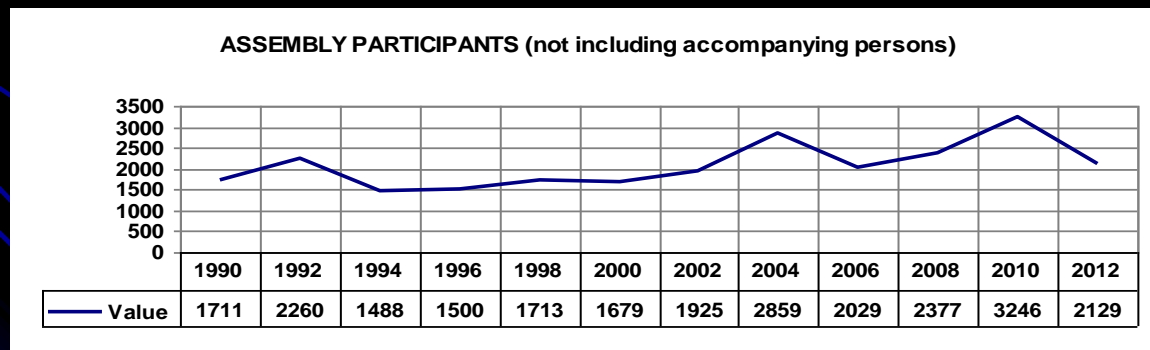
COSPAR activities

- COSPAR is well known in the space research community for its role in promoting international cooperation and disseminating research results through
 - *Scientific Assemblies*
 - *Publications*
 - *Capacity building and fellowship programs*
 - *Scientific Roadmaps*



COSPAR Scientific Assemblies

- Held every two years in a different country
- Recent Assemblies attended by 2-3,000 participants
 - *Paris, France (2004)*
 - *Beijing, China (2006)*
 - *Montréal, Canada (2008)*
 - *Bremen, Germany (2010) – record attendance of over 3,000*
 - *Mysore, India (2012)*



40th COSPAR
Assembly

COSMOS

2 to 10 August 2014

SOON TO START!

**'14 COSPAR
MOSCOW**

**RUSSIA / MOSCOW /
MOSCOW STATE
UNIVERSITY**



Forthcoming Scientific Assemblies



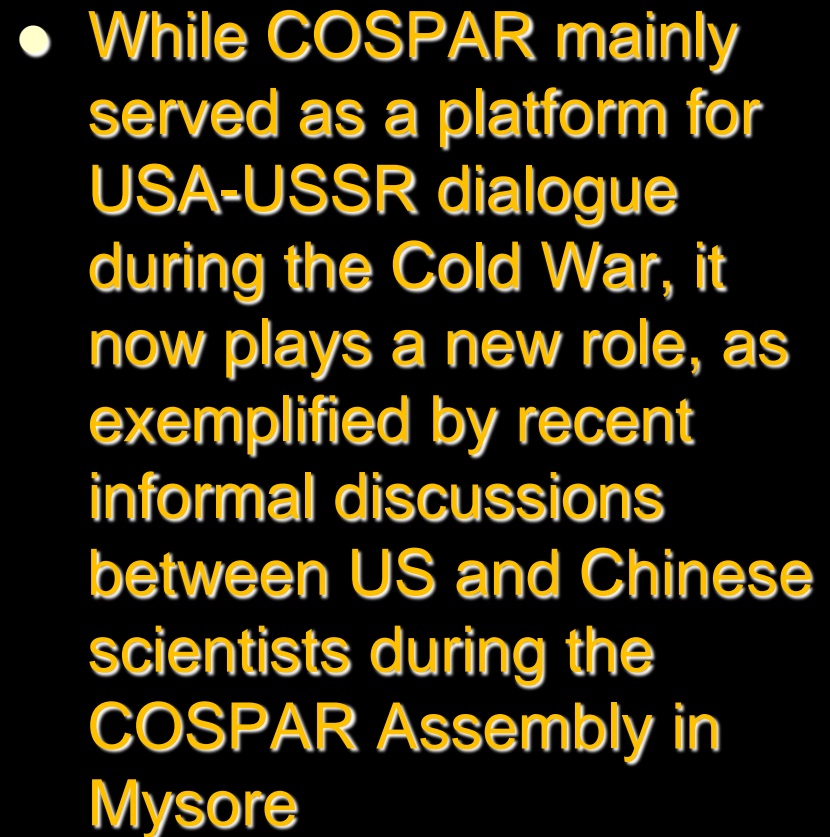
- The 41st COSPAR Scientific Assembly will be held in Istanbul, Turkey, on 30 July to 7 August 2016. The venue will be the Istanbul Congress Center
- The Council will select the venue for the 42nd Assembly among the bids presented by Malaysia and the USA.



Publications

- **Advances in Space Research**
 - *A “regular” open scientific journal with 20 issues per year*
- **Life Sciences in Space Research**
 - *A new journal first appeared in April 2014 (4 issues per year)*
- **Space Research Today**
 - *The COSPAR tri-annual information Bulletin*
 - *Includes short scientific papers, notes, reports, Assembly Call for Papers, etc.*
 - *Freely sent to all “Associates”*







COSPAR's evolving role: geographic focus

- While the COSPAR role in furthering cooperation between East and West in the field of space research remains crucial, greater emphasis is now put on the transfer of knowledge and the building of capacity in countries with newer space research programs.



COSPAR

Capacity Building Program

- The COSPAR Capacity Building Program features training workshops, held in various countries in the developing world, where students and young professionals are exposed to the most recent scientific data and techniques in space-related disciplines. It is complemented by a companion fellowship program.
- Recent workshops were held in
 - *Cape Town, South Africa, on Land remote sensing (Oct 2011)*
 - *Beijing, China, on the Earth's water cycle (Sept 2012)*
 - *Buenos Aires, Argentina, on Infrared and sub-mm astronomy (Oct 2012)*
 - *Nanjing, China, on High energy astrophysics (Sept 2013)*
 - *Bangkok, Thailand, on Atmospheric corrections of EO data (Nov 2013)*
 - *Bandung, Indonesia, on the Indonesian through flow (Jan 2014)*
 - *Tver, Russia, on remote sensing, water cycle and climate (July 2014)*
 - *Next workshop (X-Ray astrophysics) will be held in Mexico (Nov 2014)*



Capacity Building, a COSPAR priority

THE 8TH COSPAR CAPACITY BUILDING WORKSHOP:
Space Astrophysics with NASA & ESA
Missions: Swift, Chandra & XMM/Newton

Advanced High-Energy Data Processing Workshop for Young Physicists & Astronomers from North Africa & Middle East

19 JAN. - 1 FEB. 2008
 BIBLIOTHECA ALEXANDRIA
<http://cais.cu.edu.eg/astro>

Egypt

Scientific Topics
 Neutron Stars
 Black Holes
 Gamma Ray Bursts
 Supernova Remnants
 Galaxy Clusters & AGNs
 X-ray from Hot Plasma

Organizing Committee
 Dr Alaa Ibrahim (Co-Chair)
 Dr Peter Willmore (Co-Chair)
 Dr Karel v d Hucht (IAU)
 Dr Hans Haubold (UN/OOSA)
 Dr Robert Missotén (UNESCO)
 Dr K. Sreenivasan (ICTP)
 Dr I. Serageldin (Bib. Alex.)
 Dr Hamdi Hassaain (Cairo U)
 Dr Medhat Haroun (AUC)
 Dr Anas Osman (NRIAG)
 Dr Monir Hamdy (NRIAG)
 Dr Hamed Al-Najmy (UAE)
 Dr Ali Alpar (Turkey)
 Dr Shady Al-Dahi (Bahrain)
 Dr Randall Smith (NASA)
 Dr Ali Al-Shukri (USA)
 Dr Peter Willmore (COSPAR)
 Dr Hanna Sabat (Jordan)

Speakers
 Dr Keith Arnaud (NASA)
 Dr Carlos Gabriel (ESA)
 Dr Matteo Guinazzi (ESA)
 Dr Mariana Mendes (ESA)
 Dr Alaa Ibrahim (Cairo U.)
 Dr Paul O'Brien (Leicester)
 Dr Randall Smith (NASA)
 Dr Peter Willmore (COSPAR)





- **Organizers:**

- *Committee on Space Research (COSPAR)*
- *National Space Science Center, CAS (NSSC)*
- *Asia-Pacific Space Cooperation Organization (APSCO)*

- **Sponsors:**

- *Committee on Space Research (COSPAR)*
- *European Space Agency (ESA)*
- *Asia-Pacific Space Cooperation Organization (APSCO)*
- *World Meteorological Organization (WMO)*
- *Chinese Academy of Sciences (CAS)*
- *National Space Science Center, CAS (NSSC)*
- *National Remote Sensing Center of China (NRSCC)*
- *National Satellite Meteorological Center, China (NSMC)*
- *National Satellite Ocean Application Service, China (NSOAS)*
- *Fudan University (FDU)*
- *Institute of Remote Sensing Application, CAS (IRSA)*



*Joint COSPAR and WMO Capacity Building Workshop on
"Satellite remote sensing, water cycle and climate change"
20 July - 1 August 2014, Tver State University, Tver, Russia*



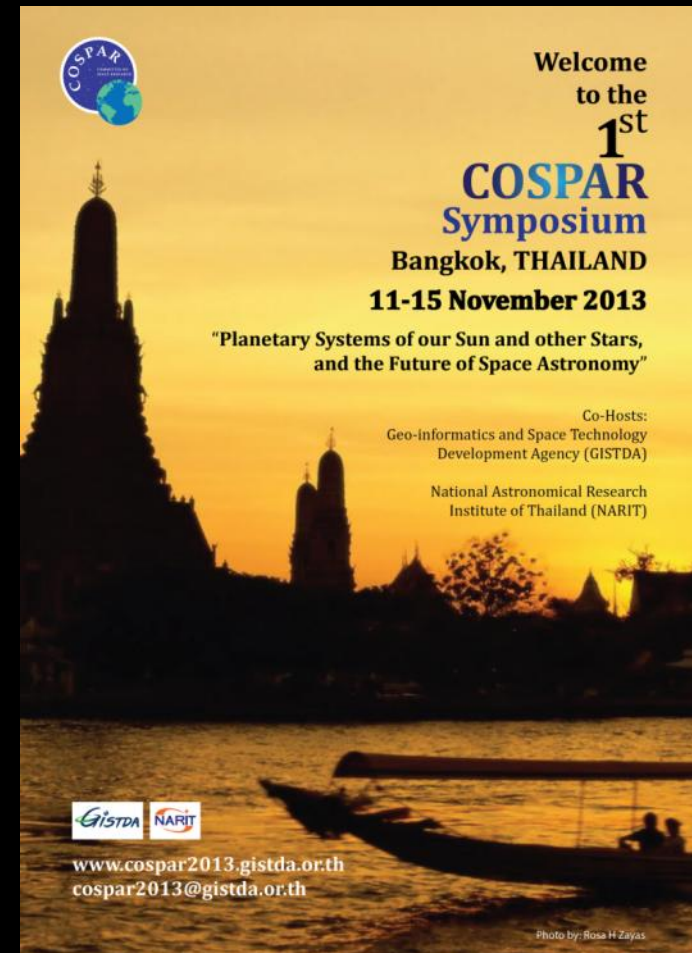
● **Sponsored by**

- **Committee on Space Research (COSPAR)**
- **World Meteorological Organization (WMO)**
- **Tver State University, Tver, Russia**
- **EUMETSAT, Darmstadt, Germany**
- **European Space Agency (ESA)**
- **Russian Geographic Society**
- **P.P. Shirshov Institute of Oceanology, Moscow, Russia**
- **Consiglio Nazionale delle Ricerche - IBF, Pisa, Italy**
- **Immanuel Kant Baltic Federal University, Kaliningrad, Russia**



A new initiative, the COSPAR Symposium

- An “off-Assembly year event”, named the COSPAR Symposium, aimed at promoting space research in countries with small to medium-size space infrastructure, was held for the first time on 10-15 November 2013.
- Host institutions were the Thailand Ministry of Science and Technology, the Geomatics and Space Technology Development Agency (GISTDA) and the National Astronomical Research Institute (NARIT).
- The Symposium interdisciplinary topic was “Planetary Systems, both of our Sun and other stars”.
- It gathered ~250 scientists (2/3 from the region, 1/3 from Europe, USA and other countries), and included a significant capacity building component:
 - *A Capacity Building workshop the week before*
 - *Training sessions during the Symposium*





Towards a 2nd COSPAR Symposium

- A proposal to hold a second Symposium in late 2015 has been submitted by Brazil
 - *The main host institutions include the São Paulo State University (UNESP) and the National Institute for Space Research (INPE)*
 - *The probable venue is Foz do Iguaçu (Paraña).*
 - *The proposed topic is “Water and Life in the Universe: conditions for origin, development and maintenance of life”.*
- A CB workshop will be organized before the Symposium.
 - *Tentative topic: “The analysis of planetary science data from space probes”.*
- The proposal was submitted to the COSPAR Bureau in March. Final decision will be made during the Assembly.



COSPAR's evolving role: collaborative projects

- Over the years many important international, collaborative programs have had their genesis in and been furthered through discussions held at COSPAR's many meetings.
- COSPAR Special reports are aimed at favoring international cooperation through the elaboration of “scientific roadmaps”



COSPAR's evolving role: focus on new science

- COSPAR has also played a considerable role in encouraging the development of new fields of space research, e.g., life sciences, fundamental physics, by providing a forum for scientists interested in these domains to exchange results and to plan collaborative projects on an international scale.



Special Reports

- Following CSAC's recommendation, COSPAR sponsored scientific reports on critical issues
 - *"Toward a Global Space Exploration Program: A Stepping Stone Approach", prepared by the COSPAR Panel on Exploration (PEX) under the leadership of Dr Pascale Ehrenfreund*
 - Published in *ASR*, 49, n°1 (January 2012)
 - *"A Roadmap for Astronomy Missions in the Coming Decades" prepared by a group of scientists under the leadership of Dr Pietro Ubertini*
 - Invited Review published in *ASR*, 50, n°1 (July 2012)



New roadmaps

- **At its 8th meeting in March 2013, the CSAC**
 - ***Recommended to continue the development of “scientific roadmaps” in various fields of space research***
 - ***In particular, two new roadmaps have been initiated:***
 - A roadmap on “Space Weather”
 - A roadmap on “Integrated Earth System Science”
 - ***Recommended that COSPAR monitors progress towards their implementation***



Space Weather Roadmap



- **Rationale**

- *A space weather roadmap would aim to identify key areas of research leading to a demonstrable improvement in service provision capability in the short, medium and longer term*

- **Sponsors**

- *COSPAR Panel on Space Weather and International Living with a Star (ILWS)*

- **Oversight group**

- *A. Glover, Wu Ji, P. Escoubet, D. Heynderickx, D. Nandi, M. Grande and T. Obara*

- **Study Group**

- *Co-chaired by K. Schrijver (Lockheed Martin) and K. Kauristie (Finnish Meteorological Institute), membership includes ~25 scientists*

- **Timeline**

- *First workshop held in Paris in October 2013*
- *Draft final report to be presented in August 2014 (Moscow Assembly)*



IESS Roadmap

- **Rationale**

- *Integrated Earth System Science in the GEO 2015-2025 era*

- **Chair**

- *Prof. Adrian Simmons (GCOS SC Chair)*



- **Members**

- **Core Group:**

- P. Friedlingstein, P. Ciais, M. Heimann, E. Lopez-Baeza, G. Asrar, K. Trenberth, E. Guilyardi, P. Levelt, M. Balmaseda, V. Ramaswamy, J. Penner

- **Complementary experts from COSPAR Scientific Commission A**

- J. Burrows, T. Shepherd, J. Johannessen, D. Halpern, N. Gobron, R. Scholes, M. Drinkwater

- **Secretary : J.-L. Fellous**

- **Timeline: October 2013 – July 2014**

- **Current status**

- *Scoping paper extensively discussed, detailed report table of content in preparation*
- *Writing team workshop to be held in the Spring*



You are a COSPAR Associate!





Thank you for your attention!

- Visit the COSPAR Web site

<http://cosparhq.cnes.fr>

