State of the IVOA
Santiago, Chile
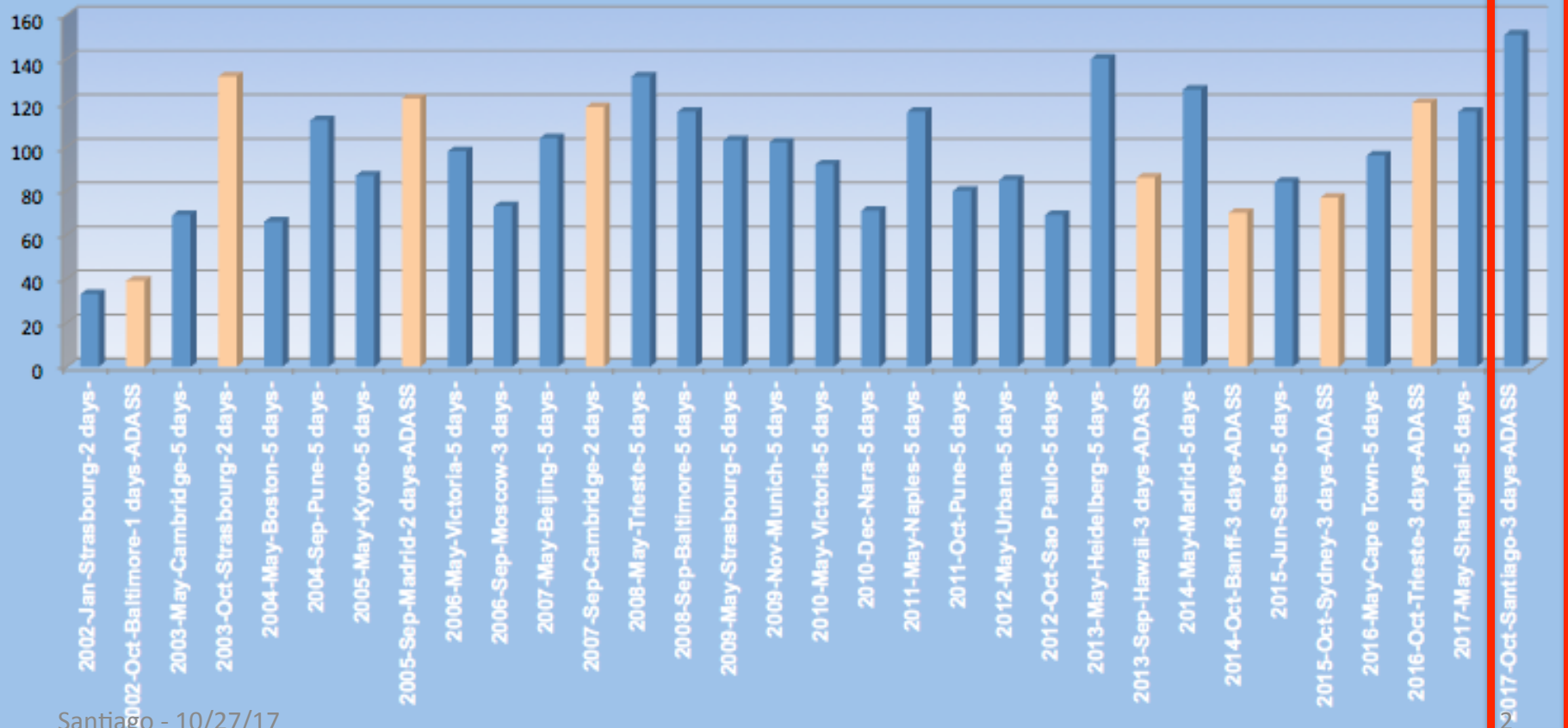## 2017 October 27-29

Pepi Fabbiano

Harvard-Smithsonian Center for Astrophysics
Chair of the IVOA Executive Committee

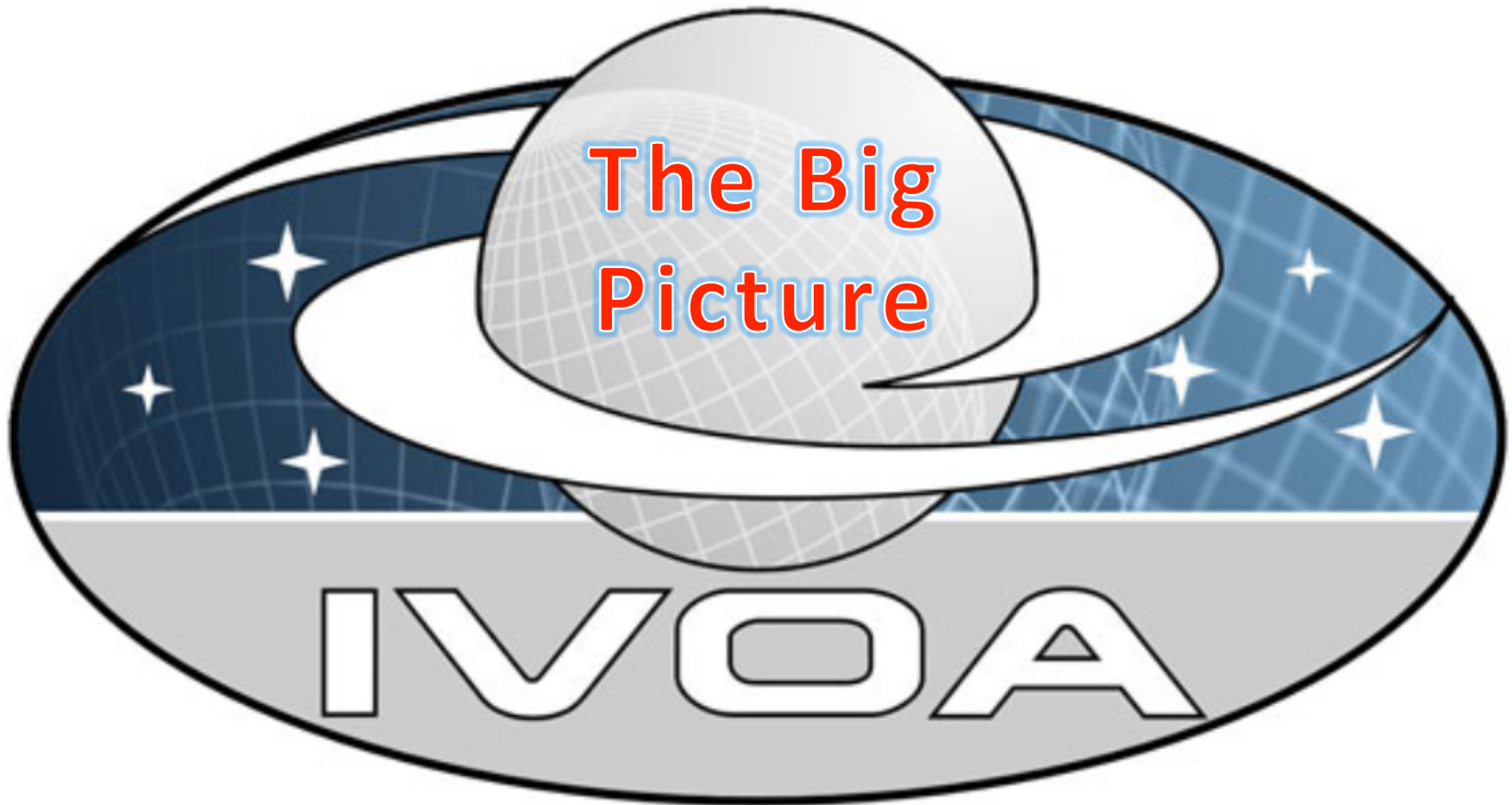IVOA Interoperability Meeting Opening Session
Santiago, Chile, 27/October/2017

The Greatest Attendance so far

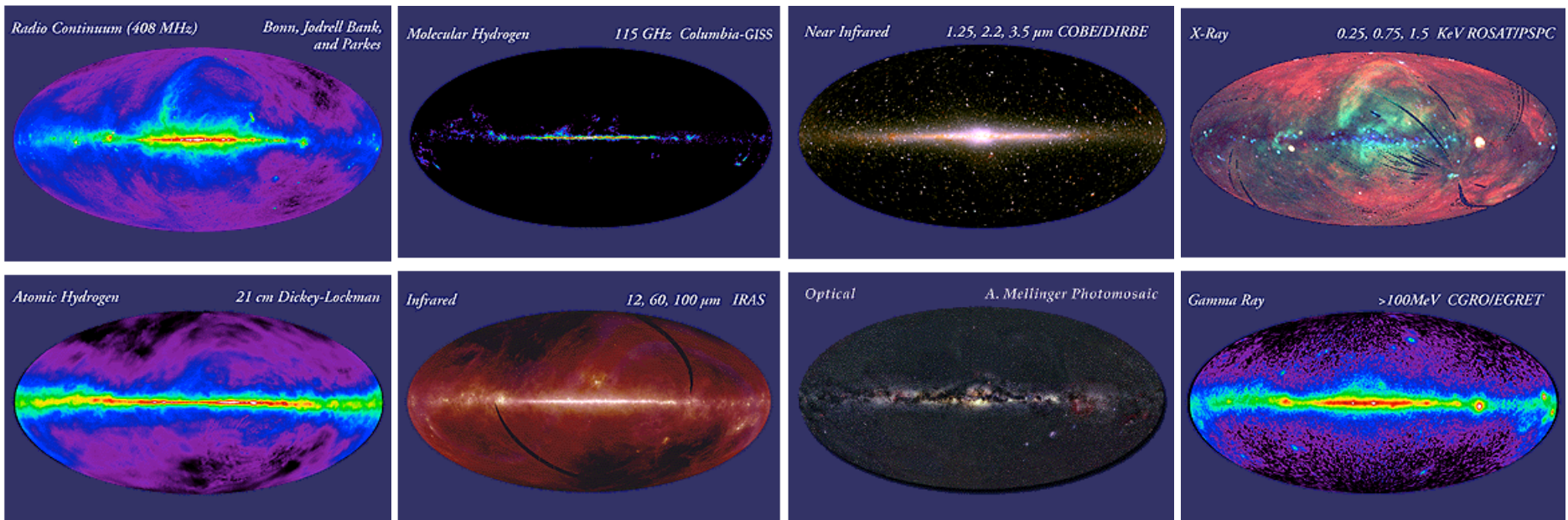**Number of Participants per IVOA Interoperability Meeting**

151

The Big Picture

What is the Virtual Observatory?

A multi-wavelength digital sky that can be searched, visualized, and analyzed in new and innovative ways
Space, **Ground,** and **Theory** data

What is the Virtual Observatory?

The VO is a paradigm for Supporting interdisciplinary and collaborative research in astronomy and exploiting the full power of growing and emerging data sets

The latest stage of good data practices in astronomy
FITS provided a first standardization, the Virtual Observatory is the natural progression towards interoperability of data, services and tools

The VO is a framework
- For data centers to provide co-operating data services,
- For software providers to offer a variety of compatible analysis and visualization tools and user interfaces

The VO **is not** a Killer Application

Dr. Strange

The VO is an Evolving Ecosystem

- **IVOA defines VO "ecosystem" and interoperability standards**
- **VO registries, Archive interfaces and VO-enabled software offer Entry Points to VO resources, Visualization, Analysis**
- **Astronomy projects and data services build VO services and VO applications**
- Projects are welcome and encouraged to participate in the standards process

The VO is an Evolving Ecosystem

- **IVOA defines VO "ecosystem" and interoperability**

- **Major Data Centers World-Wide are VO-enabled and participate in the IVOA standards development**
- **Many new services are built on VO standards : e.g. Gaia, ASKAP**

Visibility

Open Universe

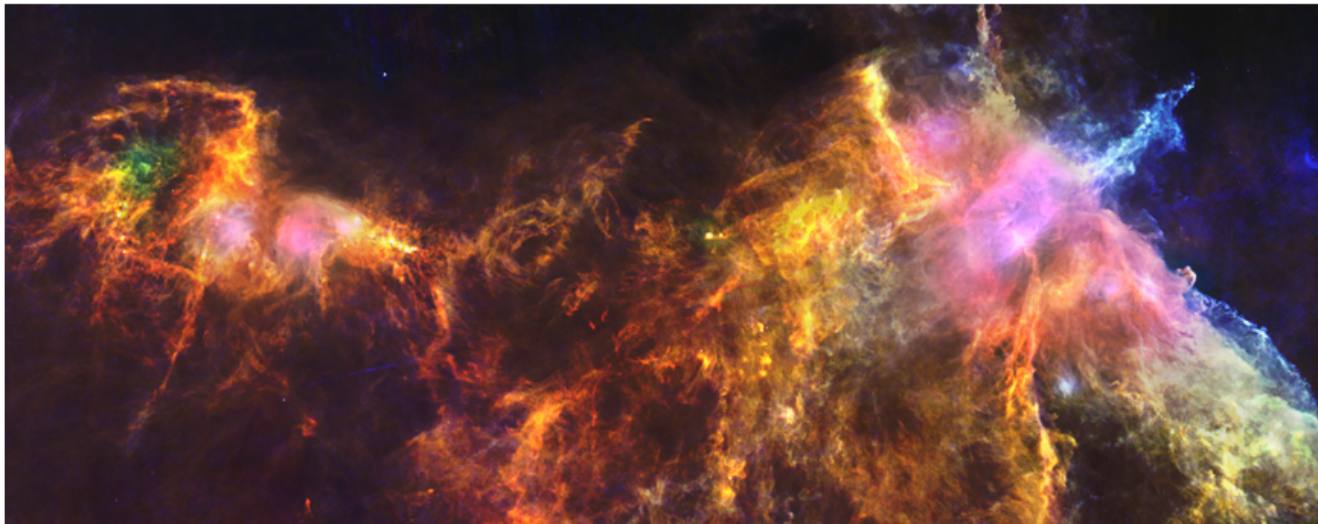http://www.unoosa.org/oosa/en/ourwork/psa/schedule/2017/workshop_italy_openuniverse.html

UNITED NATIONS
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| About Us ▾ | Our Work ▾ | Benefits of Space ▾ | Information for... ▾ | Events ▾ | Space Object Register ▾ | Docum |

Our Work > Programme on Space Applications > Schedule of Activities

United Nations / Italy Workshop on the Open Universe Initiative

VIENNA, AUSTRIA, 20-22 NOVEMBER 2017

Organized by the United Nations Office for Outer Space Affairs and

The Italian Space Agency, on behalf of the Government of Italy

Hosted by the United Nations Office for Outer Space Affairs

Open Universe

- Initiative of UNOOSA (United Nations Office for Outer Space Affairs) and Italy (Agenzia Spaziale Italiana)
- Part of the activities of UNISPACE+50
  - 2018 marks the 50th anniversary of the first United Nations Conference on the Exploration and Peaceful Uses of Outer Space
- Preparatory 'Expert' meeting held in Rome (ASI) in April 2017
  - Fabbiano, Allen, Schade, Arviset, Kovaleva attended for IVOA & stressed the importance of using established interoperability standards and working with the IVOA
- Meeting in Vienna, Austria, 20-22 Nov. 2017

Open Universe

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Office for Outer Space Affairs

5. Programme

The programme of this Workshop will include keynote addresses, plenary presentations, discussions and a poster session on the following topics:

Session 1: **Current status and perspectives in space science data**

Session 2: **Beyond the current paradigm: new initiatives and services**

Session 3: **Social and economic benefits of universal open data:** open access as an enabler of education, capacity building and knowledge-based economic development

Session 4: **Astronomy and space science citizen-science projects**

Session 5: **International cooperation, policy and legal aspects**

Session 6: **Roadmap to future success**

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Open Universe

UNITED NATIONS
Office for Outer Space Affairs

5. Programme

The programme of this Workshop will include keynote addresses, plenary presentations, discussions and a poster session on the following topics:

The IVOA will have a strong presence at this meeting

Session 5: **International cooperation, policy and legal aspects**

Session 6: **Roadmap to future success**

United Nations / Italy Workshop on the Open Universe Initiative

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IAU General Assembly
2018, Vienna Austria

- IAU Inter-Commission B2-C1-C2 WG Data Driven Astronomy Education and Public Outreach (DAEPO) was launched
  - Chenzhou Cui chair
  - https://www.iau.org/science/scientific_bodies/working_groups/305/
- The IVOA Exec has decided to have an IVOA booth
- Several of our data centers will be at the IAU General Assembly

Media and Data Presence

- The New IVOA Media Group announced at the Shanghai meeting
  - **Debbie Baines** (ESA) – Lead Newsletter Editor
  - **Simon O'Toole** (Aus-VO) – Lead for other media presence
  - **Li Shanshan** (China-VO)
  - **Yihan Hao** (China-VO)
  - **Jamie Anne Budynkiewicz** (USVOA)
  - **Teresa Dower** (USVOA)
  - **Giulia Iafrate** (Italian VO)
- Group in charge of assembling & producing IVOA newsletters
- Also exploring a more complete media presence
- **If interested in helping out, ask Debbie**

- The Committee on Science Priorities will explore an IVOA Portal
- **New chair Bruno Merin (ESA)**
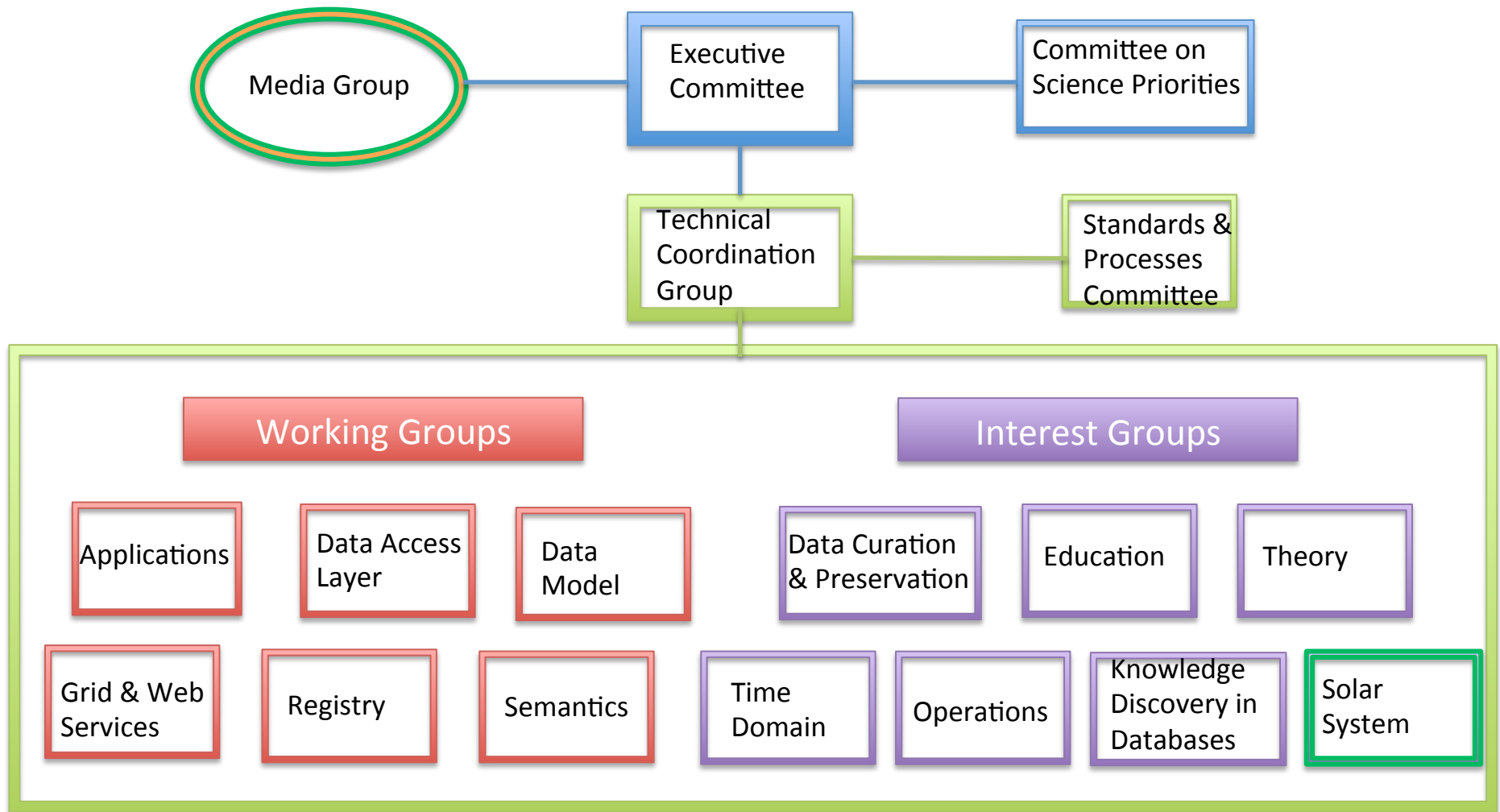
Nov 2017 issue of Newsletter being prepared

IVOA News

...after the Shanghai meeting

IVOA Organization Chart

Media Group

Executive Committee

Committee on Science Priorities

Technical Coordination Group

Standards & Processes Committee

Working Groups

Applications

Data Access Layer

Data Model

Grid & Web Services

Registry

Semantics

Interest Groups

Data Curation & Preservation

Education

Theory

Time Domain

Operations

Knowledge Discovery in Databases

Solar System

Chair & Vice-chair Rotation

1 Year extensions

New Chair/V Chairs

Coming out of Shanghai meeting

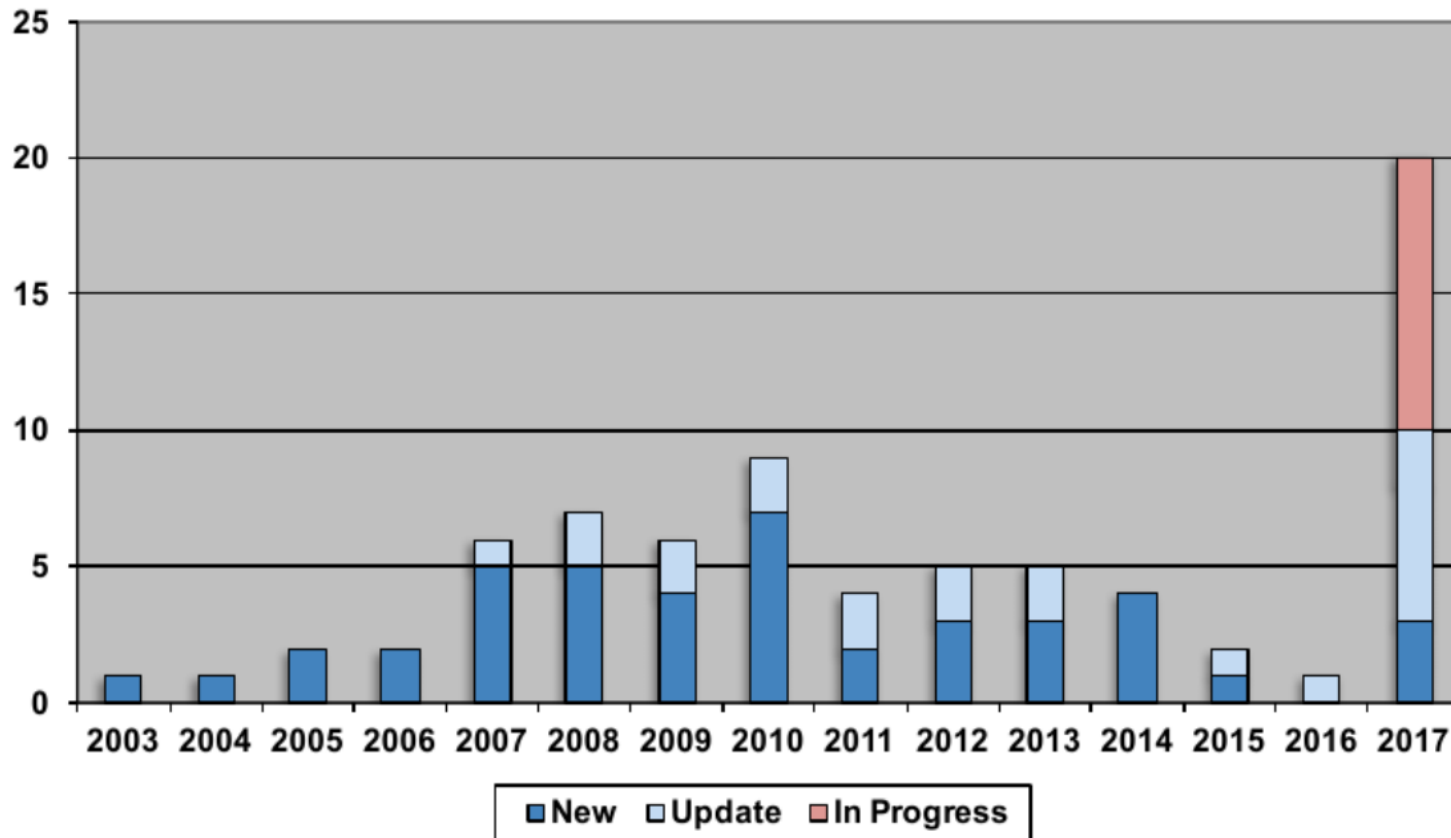| Area	Chair	Vice Chair
Working Groups:		
Applications	PierreFernique	TomDonaldson
Data Access Layer	FrancoisBonnarel	MarcoMolinaro
Data Model	MarkCresitelloDittmar	LaurentMichel
Grid & Web Services	BrianMajor	GiulianoTaffoni
Registry	MarkusDemleitner	TheresaDower
Semantics	MireilleLouys	AlbertoAccomazzi
Interest Groups:		
Data Curation&Preservation	FrancoiseGenova	n/a
Education	Chenzhou Cui	Hendrik Heinl
Knowledge Discovery in Databases	KaiLarsPolsterer	n/a
Theory	CarlosRodrigo	n/a
Time Domain	Ada Nebot	DaveMorris
Operations	TomMcGlynn	MarkTaylor
Solar System	B. Cecconi	
Other Groups / Committees:		
Media Group	Debbie Baines	
Technical Coordination Group	MatthewGraham	PatrickDowler
Liaison Committee	MasatoshiOhishi	
Standing Committee on Science Priorities	Bruno Merin	
Standing Committee on Standards & Processes	C. Arviset	

Progress in Standards
At the end of the Shanghai meeting

IVOA Standards Recommended per Year

Other News

- **USVOA news**
  - USVOA will hold annual face-to-face meeting at Jan AAS
  - NAVO
    - Awarded by NASA 3-year continuation of NAVO activities
    - Will hold a workshop at the 231st meeting of the AAS on January 7, 2018
    - All CAOM data in MAST now available through TAP
    - IRSA has made an initial public release of SIA2 and SSA services. A few of its major datasets (Spitzer, WISE, 2MASS) are available through these services now, others on the way. Visit
    - https://irsa.ipac.caltech.edu/ibe/sia.html
    - https://irsa.ipac.caltech.edu/ibe/ssa.html
  - LSST looking into big-data use cases and comparison with IVOA protocols

- **China VO**
  - HiPS interface for WWT under internal test
  - China-VO 2017 – november, 140 participants expected
- **ChiVO**
  - ALMA data indexing, SIA, SCS TAP services
  - SAMP support for Jupyter notebooks

- **Euro-VO**
  - Activities in framework of H2020 ASTERICS project
    - Astronomy and Astroparticle physics
    - ESFRI partners
  - Events
    - 3rd DADI VO School – Nov 14-16, 2017, Madrid (32 students, ~10 tutors)
    - ESFRI Forum and Training event, Dec 2017
    - European Data Provider Forum and Trainging event, June 2018

- **GAVO**
  - Datasets: Antares (neutrinos), GPS1 catalogue
  - DaCHS publication suite
  - SLAP and VAMDC protocols in SPLAT-VO
  - pyVO DataLink support
  - Education and Outreach activities

A working meeting

- Keywords: Engagement and participation
  - Vision
  - Standardisation
  - Implementation
  - Feedback
- Address the real needs of Astronomy research
- Realistic compromises that foster implementation and innovation

Lets go to work…

- And now lets go to work…
  - We have a packed program

Programme for October 2017 Interop in Santiago, Chile

Session	Time	Room	Session
Thursday Oct 26, 2017			
0	15:30-17:30	Prat	IVOA Executive Meeting - Sheraton Convention Cente
Friday Oct 27, 2017			
1	09:00–09:15	San Cristobal	Welcome and Logistics
	09:15–09:35		State of the IVOA
	09:35-09:45		State of the TCG
	09:45–10:15		Charge to Working Groups
	10:15-10:30		Science Priorities
	10:30–11:00	*Break*	
2	11:00–12:30	San Cristobal	GWS
		O'Higgins	DM 1
	12:30–14:00	*Lunch*	
3	14:00–15:30	San Cristobal	TDIG/DAL/DM 1
		O'Higgins	Semantics
	15:30 –16:00	*Break*	
4	16:00–17:30	San Cristobal	DAL 1

Thank you Mauricio and the LOC