



OATS Information Technology

Sara Bertocco (speaker)

Andrea Bignamini

Chaitra

Marco Molinaro

Stefano Alberto Russo

Giuliano Taffoni

Robert Butora

David Goz

Fabio Pasian

Riccardo Smareglia

Luca Tornatore

Nicola Fulvio Calabria

Cristina Knapic

Kalyani Pedamkar

Massimo Sponza

Cristiano Urban

@ inaf.it



Macro areas

- **Italian Archives and ICT technological support services – IA2 and ICT**
- **Interoperability Standards & Development – VObs.it**
- **Computing – ExaCT**



Italian Astronomical Archives

Data management plan definition (data models use case study, publication and access policies definition, ownership and responsibilities)

Archive development, implementation and operations

- Database management and operations

- Storage architecture and access policies

- Workflows setup, management, data reduction and small computation

- Data ingestion, curation and distribution software development

Data access

- Design, development, operations of data access portals

- User management, Authentication and Authorization framework

- Data preservation and curation (user space VO Compliant)

- IVOA discovery and access services implementation

- Data providers and Users support



Technological Services Activities

ICT technological support services deployment and operations

- [GitLab](#)
Web-based Git repository that provides free open and private repositories. Git is for tracking changes in any set of files, collaborative continuous development
- [EasyRedmine](#)
Web-based project management and issue tracking tool. Manage multiple projects and associated subprojects. It features per project wikis and forums, time tracking, and flexible, role-based access control
- [Indico](#)
A web application which facilitates the organization of events of all sizes, conferences, workshops, lectures and meetings
- [OwnCloud](#)
A web service to store, share and edit your data
- [TWiki](#)
An easy to use wiki implementation. A wiki is a website or database developed collaboratively by a community of users, allowing any user to add and edit content.
- [Yabi](#)
A Workflow Management System through which the users can run a custom data reduction on proprietary data acquired with the HARPN spectrograph of TNG.

Projects & Collaborations

PROJECTS



MAIN ACTIVITIES

TELESCOPE ARCHIVES & SIMULATIONS

MAIN					
	TNG	LBT	Asiago	SVAS	RADIO
MAIN					
	Exoclimates	INTRIGOSS	LBT OLD		
HOSTED					
	Byurakan	INES	BaSTI	IBIS-A	other archives @ INAF
					Catania Solar Observations

OTHER SERVICES

ownCloud	Easy Redmine	VO initiatives	GitLab	yabi

collapse [-



Standardization and Interoperability

- Feedback, implementation and development of International Virtual Observatory Alliance (IVOA) standards
 - data access, authN&authZ, operations, ...
- Technical coordination of IVOA WGs/IGs
- Host, support and development of IVOA web assets
 - document repository and coordination, mail server, collaborative wiki, web contents, newsletter editing
- INAF level coordination of IVOA Radio Interest Group with IRA-BO
- Collaboration with ASI (SSDC) across INAF
- Collaboration with INFN and various Universities in VObs.it
- Integration of data interoperability within the EOSC infrastructure
- EPO activities using VO data

Projects & Expertise

VObs.it - national initiative for IVOA participation

EuroVO - collaboration on european coordination for IVOA support.

It includes: Euro-VO (Tech, DCA, AIDA, ICE), CoSADIE, ASTERICS and ESCAPE VO efforts





Computing

- Hardware
 - HPC, HTC and cloud computing infrastructures (INAF services)
 - Parallel storage and interconnect
 - Co-design of prototype of new exascale machines
- Software
 - Optimized algorithms for HP exascale computing
 - Applications on accelerators and processors of new generation
GPU, FPGA, ARM
 - Applications carbon footprint, green computing
- Training and High Education
 - University of Trieste “Data Science and Scientific Computing”
department

Projects & Expertise



EUROPEAN TECHNOLOGY
PLATFORM FOR HIGH
PERFORMANCE COMPUTING



InCASS



EuroHPC
Joint Undertaking



LOFAR-IT



Industrial collaborations: E4, EngineSoft, Intesa Sanpaolo, Unipol



Collaborations and Cross fertilization

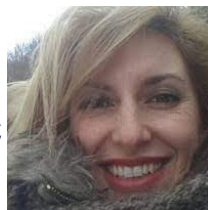
- OATs Technology group internal collaborations
 - Computing with Electronical Laboratory for HPC applications carbon footprint evaluation
 - Computing with Science Data Segment for applications on new hardware architectures
- Collaborations in INAF
 - OACT: HPC, Data Imaging
 - IRA-BO: Science Platforms, Auth&Authz, Radio archives
 - OAR: Archives
- Other collaborations
 - ASI-SSDC
- and ... much more!



People, Expertise & Collaborations



Project design & management
Riccardo Smareglia



Cristina Knapic

Andrea Bignamini

Software development,
data ingestion,
data curation, workflows



Cristiano Urban



Software development, services deployment
and support, operations, databases

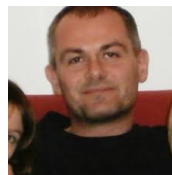
Nicola Fulvio Calabria
Software

development,
portals & data
access



Massimo Sponza

Hardware,
virtualization
storage,
services deployment,
operations, databases



Vincenzo Galluzzi

Radio astronomy,
data ingestion,
data curation



Martina Vicinanza

Data ingestion
and data curation
for optical/IR
astronomy



Cross activities: **Franco Tinarelli** A&A and services development

Alessandra Zanichelli INAF radio data archive

Sara Bertocco storage IVOA compliant, PRISMA archive

INAF Technolog

Marco Molinaro & Robert Butora VO data accessibility



People, Expertise & Collaborations

Marco Molinaro

IVOA Technical Coordination
Standards implementation
web assets support (also archives)



Fabio Pasian

Interoperability policies and procedures, IVOA Exec member

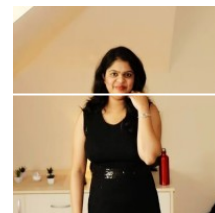
Robert Butora



Standard data access services development, Authentication & Authorization (also archives)

Kalyani Pedamkar

IVOA web support and development



Sara Bertocco

Data and computing interoperability in big distributed infrastructures (also archive and computing)

Giulia Iafrate (fraction)

IVOA Document Coordinator & Newsletter co-editor

Cross activities:

Giuliano Taffoni IVOA GWS coordination

Nicola Fulvio Calabria data access tools software development

Martina Vicinanza archive data curation

Alessandra Zanichelli, Vincenzo Galluzzi INAF coordination of IVOA Radio IG

People, Expertise & Collaborations

Giuliano Taffoni

Project design & management
(also **Interoperability**)



Luca Tornatore

Simulation
applications
optimization



Stefano Alberto Russo

Science Platforms
Distributed Systems
Software Containers
Machine Learning
Big Data



David Goz

Software development,
porting, optimizations on new
architectures (FPGAs, GPUs)



Chaitra

Hydrodynamical simulations archive
IVOA simulation standards.



Cross activities: Daniele Tavagnacco (Euclid) Imaging optimization on GPUs

Claudio Gheller (IRA-BO)

Sara Bertocco standardization of computing resources metadata, wide HPC
resource access