ESASky, all skies in your browser

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On behalf of Fabrizio Giordano, Elena Racero, Henrik Norman, Deborah Baines, Belén López Martí, Jesús Salgado, Sara Alberola, Christophe Arviset & Guido de Marchi in the ESDC team.

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Goal: to facilitate data discovery and archival science for ALL users

• Multi-wavelength
• Project agnostic
• Exploration
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Interface “on top of” all ESA astronomy archives
Collaboration is key

International Virtual Observatory Alliance
Standards: HiPS, SAMP, TAP, ObsCoreDM, MOC

XMM-Newton and Chandra

Footprints

Dedicated Python module to ESASky

http://sky.esa.int
Science-user driven archives

Experience

Amount of data

ESASky and GUIs

SEPP

WEB APIs and tools

Bruno Merín | ESASky | Open Universe UN Workshop | 20/11/2017 | Slide 5
The story so far...

Used by 30,000 users, with peaks at announcements or events.

GW170817
We reach all corners of the planet with a Content Delivery Network (CDN)
User feedback prioritized in development
Aim: continuous integration, testing and releasing
ESASky feature roadmap

Prototype (summer 2014)
- Web interface
- All-sky HiPS mosaics from CDS
- Detailed footprints (imaging)
- Multi-target functionality

First Release (May 2016)
- Scientific validation of footprints and ESA all-sky HiPS by ESA
- Download management
- Multi-target summary table
- Interoperability with VO tools
- Documentation
- Helpdesk Support
- Hardware scaling requirements
- Refactoring of prototype into robust and stable application

Second release (TODAY!!)
- Link to Vizier/Simbad
- Generation of detailed footprints (spectra)
- Imaging and spectroscopic data
- Online visualization of data
- Solar System Objects serendipitous search
- On demand overlaying of footprints for pre-planning

Third release (2018)
- Sample manipulation
- Time-series / time domain
- Observation planning
- State-fullness
- Massive data visualization
- Link to publications?
- Mobile app?

Aim: continuous integration, testing and releasing
Demos

Day 1: https://youtu.be/WKVuF0ypLQM?t=1h41m43s
Day 2: https://youtu.be/eEBbqyagNUI?t=4h7m37s
Credits:

- **Current ESASky team members:** Fabrizio Giordano, Maria Henar Sarmiento, Elena Racero, Jesús Salgado, Belén López, Bruno Merín, Henrik Norman, Debbie Baines, Raul Gutierrez, Pilar de Teodoro, Juan Gonzalez, Juan Carlos Segovia and Sara Nieto.

- **Former ESASky team members:** Andy Pollock, Michael Rosa, Iñaki Ortiz de Landaluce, Ignacio Leon and Javier Castellanos.

- **CDS:** Pierre Fernique, Thomas Boch and Mark Allen.

- **XMM-Newton Science Operations Centre:** Pedro Rodríguez, Nora Loiseau, Maria Santos-Lleo, Matthias Ehle and Norbert Schartel

- **INTEGRAL Science Operations Centre:** Guillaume Belanger, Erik Kuulkers and Peter Kretschmar.

- **Planck Science Office:** Marcos López-Caniego, Xavier Dupac and Jan Tauber.

- **Herschel Science Centre:** Pedro García Lario, Eva Verdugo, Ivan Valtchanov, Miguel Sánchez-Portal, Pilar Esquej and Göran Pilbratt

- **ESAC Computer Support Group:** Alejandro Lorca, Roberto Prieto and Ruben Álvarez.

- **Euclid Science Centre:** Bruno Altieri, John Hoar and René Laureijs.

- **HST/ESO:** Jonas Haase and Antonella Nota.

- **JWST:** Anthony Marston, Marco Sirianni, Macarena García-Marín

- **Canadian Astronomy Data Centre (CADC):** Daniel Durand

- **Astropy / Astroquery:** Brigitta Sipocz, Matthew Graham, and Adam Ginsburg

- **Johns Hopkins University:** Tamás Budavári

- **Jet Propulsion Laboratory, Caltech:** Krzysztof Górski

- **ISAS, JAXA:** Ken Ebisawa

- **Chandra, NASA:** Janet Evans, Raffaele D’Abrusco, Yulie Zografo, Arnold Rots

- **Institute of celestial mechanics and ephemeris calculations (IMCCE), Paris:** Jérôme Berthier, Benoit Carry
Conclusions

Lessons learned from 1.5 years of ESASky 1.0 operations

- Users like simple interfaces even if they are limited
- Different types of users need different interfaces (most need simplicity)
- Development teams should prioritize for real the user feedback
- Follow the user workflow all the way to the paper

- ESASky v2.0 just released!
  - Access to spectroscopic data from all missions
  - Improved usability, now also on mobile devices!
  - Access to Solar System Objects as observed by Astronomy missions
  - Talk to us if you want to collaborate!!
Thanks!

http://sky.esa.int

Feedback: http://esasky.userecho.com

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