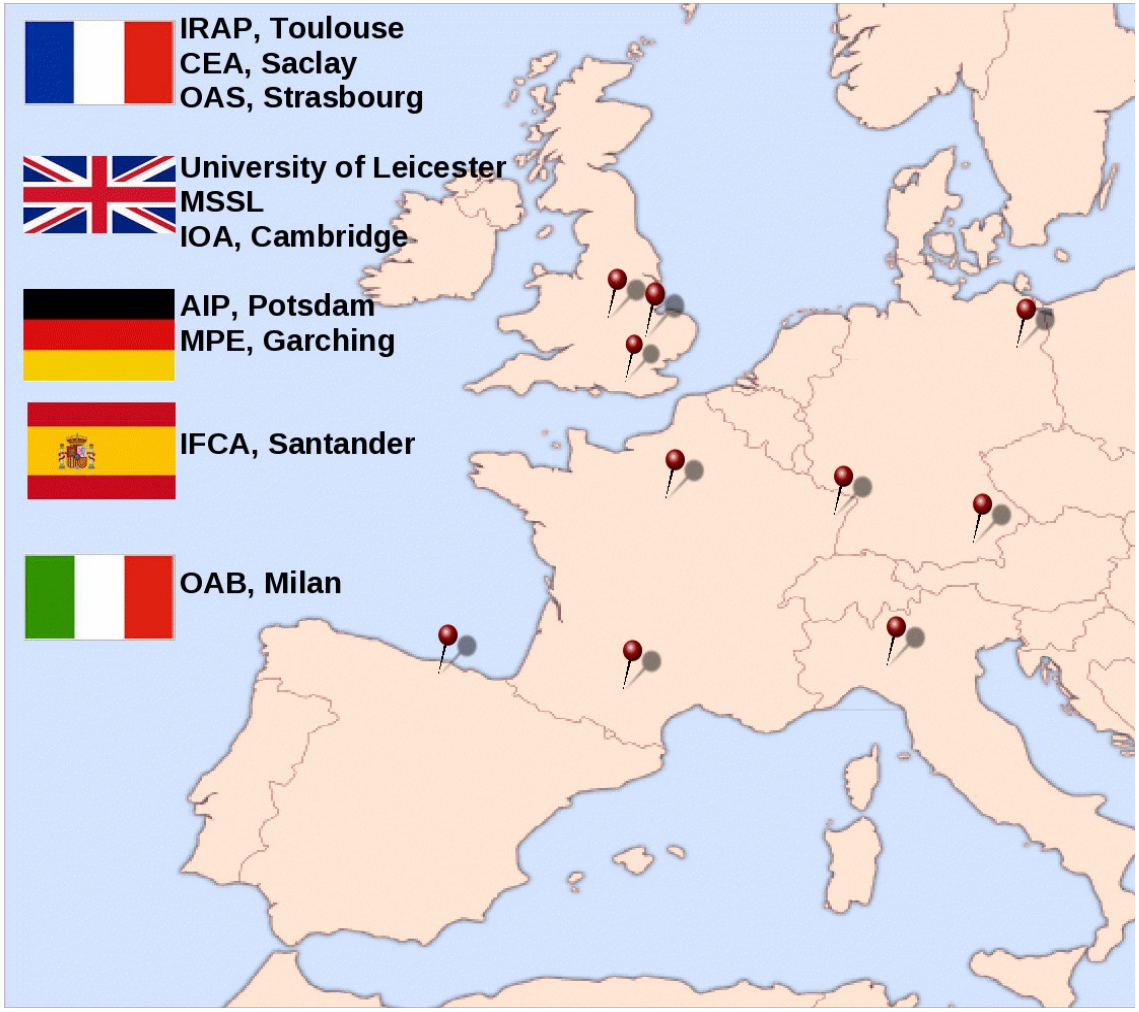
The XMM-Newton Survey Science Centre (XMM-SSC)

Natalie Webb

The XMM-SSC

The XMM-Newton Survey Science Centre was selected by ESA to ensure that the scientific community can exploit XMM-Newton data



Responsibilities :

- Development of science analysis software (SAS)
- Pipeline processing of all XMM-Newton observations.
- Follow-up/identification of XMM-Newton serendipitous sky - the XID Programme
- Compilation of Serendipitous Source Catalogue.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement n°101004168

XMM2ATHENA

XMM-Newton : a pathfinder for future multi-wavelength and multi-messenger observations, with Athena

SPACE-30-SCI-2020: Scientific data exploitation

Complimentary skills will allow us to develop+test new methods/software :

- to follow the X-ray transient sky in quasi-real time
- to identify multi-wavelength/messenger counterparts of X-ray sources
- to determine their nature using advanced machine learning methods
- to probe the faintest sources using innovative stacking and detection

Provide added value products to the XMM-Newton archives

Newly detected/identified sources will enhance our preparation of the X-ray sky that will be observed with Athena

Employ post-docs to whom we can pass on our skills and expertise

Local structure

XMM-SSC :

Natalie Webb (0.5 FTE) : Consortium management, software, catalogue, website, source ID
Mickael Coriat (0.3 FTE) : Catalogue, management machines/ servers, website
Roberta Amato (1 FTE) : Data validation, catalogue

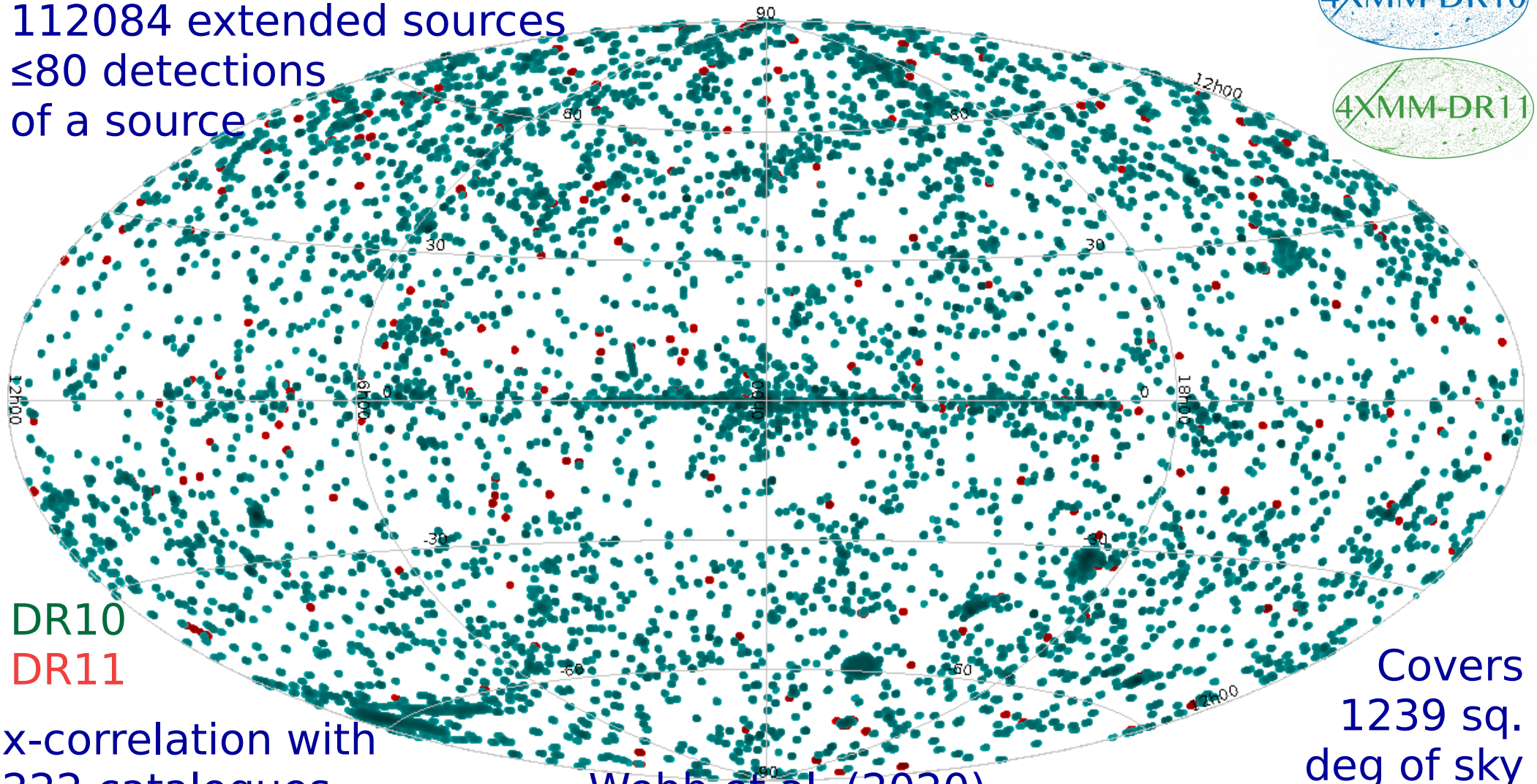
Financing : CNES (1 post-doc, 2 or 3 interns, travel, computers)

XMM2ATHENA :

Hugo Tranin : Source classification
Erwan Quintin : Long term variability
Maitrayee Gupta (1 FTE) : Short term variability
Zoé Massida : Administration (0.3 FTE) / communication

4XMM-DR11

DR11: 895415 detections (+45424), 602543 unique sources (+27385)
319292 (36%) sources with spectra and lightcurves
112084 extended sources
≤80 detections
of a source



4XMM-DR10

4XMM-DR11

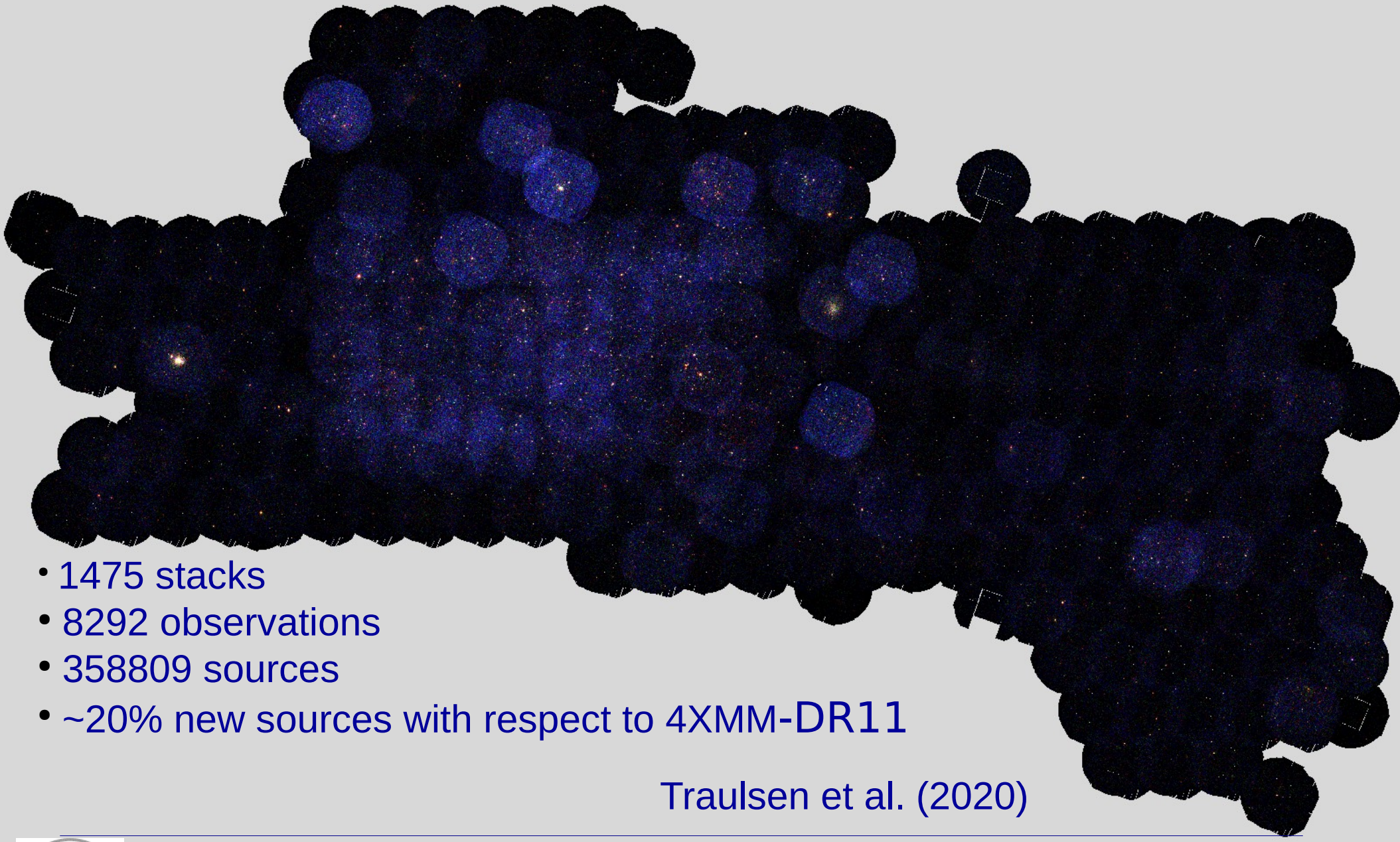
DR10
DR11

x-correlation with
222 catalogues

Webb et al. (2020)

Covers
1239 sq.
deg of sky

4XMM-DR11s



- 1475 stacks
- 8292 observations
- 358809 sources
- ~20% new sources with respect to 4XMM-DR11

Traulsen et al. (2020)

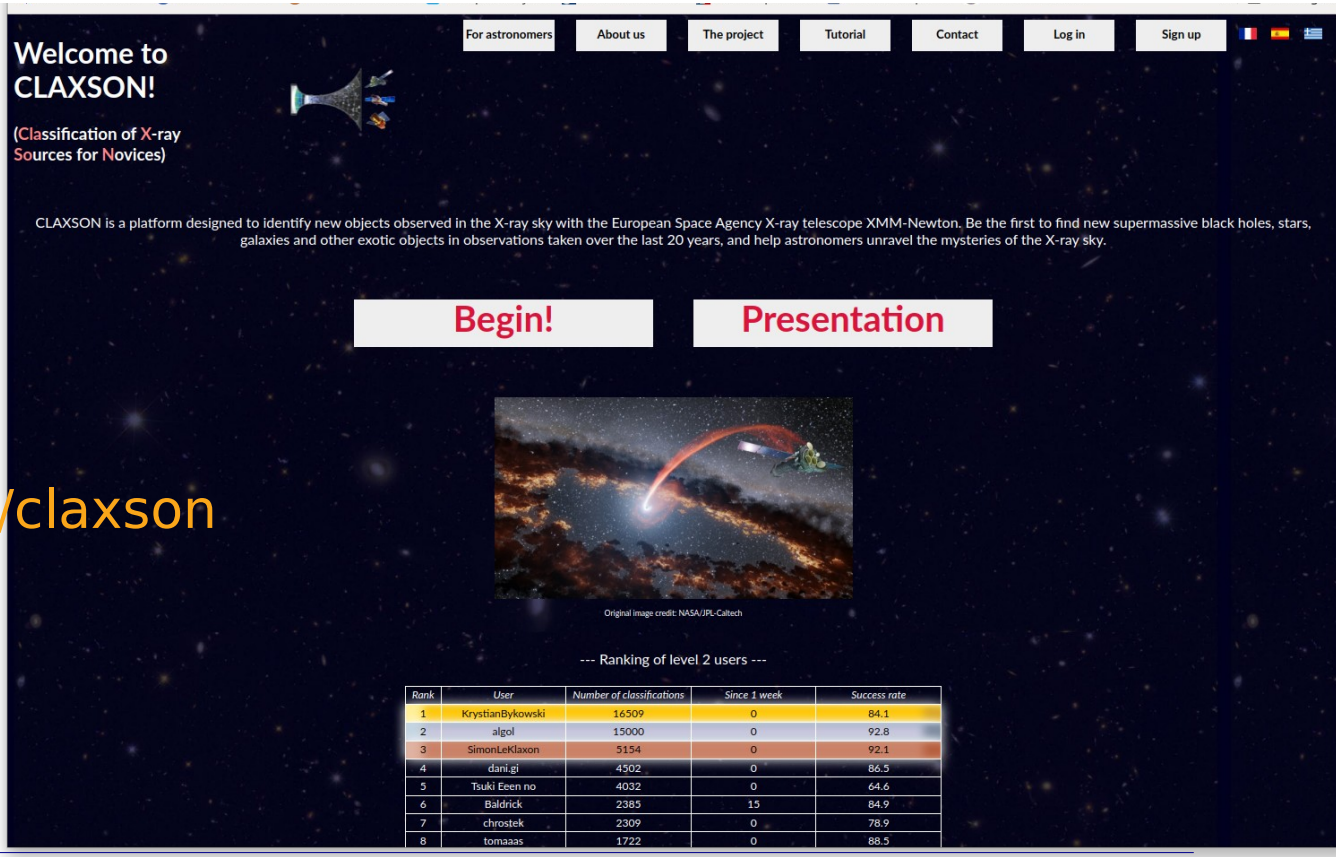
Other activities

New versions of data analysis software (SAS, version 20.0.0 (30 Nov. 2021, v. 19.1.0 (17 Mar 2021), v. 19.0.0 (28 Oct. 2020))

Server and website updates : http://xmmssc.irap.omp.eu/
http://xmm-catalog.irap.omp.eu/
https://xcatdb.unistra.fr/4xmmdr11/alixindex.html

New methodology developed – to be implemented

Outreach activities, e.g. :
http://xmm-ssc.irap.omp.eu/claxson



Future look

2022

4XMM-DR12 and 4XMM-DR12s

Fully implement upper limit server

Put in place software to exploit time domain data

SNO and CNES review of XMM-Newton

Consortium meeting, October, Athens

XMM-Newton users group meeting, 16-17th May, ESAC

Long term

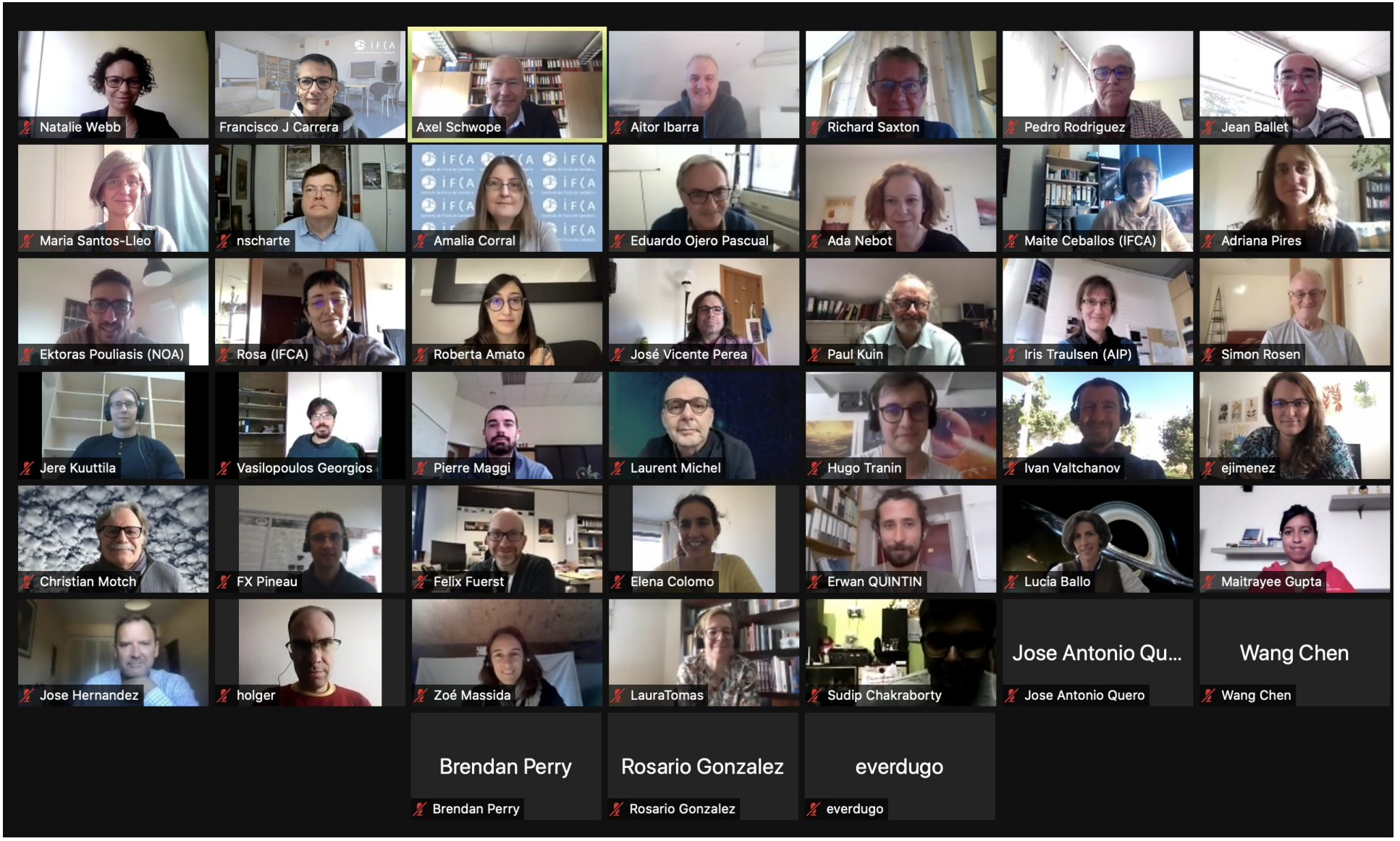
Yearly incremental versions of 4XMM

5XMM expected for ~2025 – XMM-Newton could fly until 2032

- Classified X-ray sources (Tranin et al. 2021) + optical sources
- Multi-wavelength/messenger counterparts to X-ray sources + photo-z
- Improved source detection in the stacked catalogue
- (Physically motivated) spectral fits, including sources with 5 flux bands
- (Very) short term and long term variability (+alerts)

Continue to provide legacy products over the lifetime of XMM-Newton

34th SSC meeting



Back up

Back up

Other outreach

http://xmm-ssc.irap.omp.eu/xmm2athena/outreach/