VisTAP/ObsTAP services & SciApp to improve coordination

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Observatory services: Standardisation

- There is a set of common information available in all observatories web pages
- This information is accessible through web forms and it is presented in static web pages

Why don't we standardise the information exchange to improve the efficiency to plan observations or coordinate observation campaigns?

MOVE FROM OBSERVATORY TOOLS TO OBSERVATORY SERVICES

Identify which observatory tools could be easily transform in services (if they are not already a service)

Target visibility checks

Scheduled and planned observation logs

- Standardise the input parameters
- Standardise the output information and format

Virtual Observatory protocols

ObsTap as existing service

The combination of the ObsCoreDM with TAP is referred to as an ObsTAP service.

Definition of the core components of the Observation data model that are necessary to perform data discovery when querying data centres for astronomical observations of interest …

Idea:
Extend this service or create a new standard to be used for visibility check and scheduled observation information

obs_id	unitless	String	Observation ID	OBS_ID
obs_publisher_did	unitless	String	Dataset identifier given by the publisher	?
access_url	unitless	String	URL used to access (download) dataset	TBD
access_format	unitless	String	File content format (see in App. **Error! Reference source not found.**)	NULL
access_estsize	kbyte	integer	Estimated size of dataset in kilo bytes	NULL
target_name	unitless	String	Astronomical object observed, if any	"Target" ?
s_ra	deg	double	Central right ascension, ICRS	RA
s_dec	deg	double	Central declination, ICRS	DEC
s_fov	deg	double	Diameter (bounds) of the covered region	Fixed value for each XMM-Newton Instrument
s_region	unitless	String	Sky region covered by the data product (expressed in ICRS frame)	TBD, not easy for RGS

International Virtual Observatory Alliance

Observation Data Model Core Components and its Implementation in the Table Access Protocol

The XMM-Newton & Integral: Visibility Check Use Case

XMM-Newton

http://xmm.esac.esa.int/XMMVisCheck?
startDate=11-10-2017&
minduration=12.000&
coordinates=equatorial&
ra=192.063458&
dec=17.77394

INTEGRAL

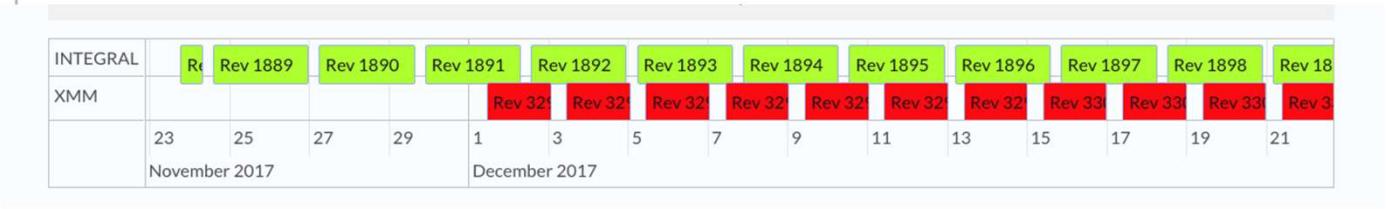
http://integral.esac.esa.int/IntegralVisCheck?
startDate=11-10-2017&
minduration=12.000&
coordinates=equatorial&
ra=192.063458&
dec=17.77394

Standard REST web service

xmm.esac.esa.int/XMMVisCheck?ra=321&dec=34&minDuration=5000&startdate=20-Dec-2017&enddate=20-Dec-2018&coordinates=equatorial


```
[{"SolarA":"89.3","Rev":"3293","VisStar":"2017-12-01 10:19","AstroA":"241.2","VisEnd":"2017-12-03 01:12","StarPh":"0.12","Round":"130000","VisDur":"139962","EndPh":"0.93"},
{"SolarA":"87.9","Rev":"3294","VisStar":"2017-12-03 10:11","AstroA":"239.7","VisEnd":"2017-12-05 00:54","StarPh":"0.12","Round":"130000","VisDur":"139376","EndPh":"0.93"},
{"SolarA":"86.5","Rev":"3295","VisStar":"2017-12-05 10:05","AstroA":"238.2","VisEnd":"2017-12-07 00:47","StarPh":"0.12","Round":"130000","VisDur":"139318","EndPh":"0.93"},
{"SolarA":"85.1","Rev":"3296","VisStar":"2017-12-07 09:59","AstroA":"236.8","VisEnd":"2017-12-09 00:39","StarPh":"0.12","Round":"130000","VisDur":"139189","EndPh":"0.93"},
{"SolarA":"83.7","Rev":"3297","VisStar":"2017-12-09 09:53","AstroA":"235.3","VisEnd":"2017-12-11 00:31","StarPh":"0.12","Round":"130000","VisDur":"139045","EndPh":"0.93"},
{"SolarA":"82.3","Rev":"3298","VisStar":"2017-12-11 09:46","AstroA":"233.8","VisEnd":"2017-12-13 00:12","StarPh":"0.12","Round":"130000","VisDur":"138334","EndPh":"0.92"},
{"SolarA":"80.9","Rev":"3299","VisStar":"2017-12-13 09:39","AstroA":"232.3","VisEnd":"2017-12-15 00:03","StarPh":"0.12","Round":"130000","VisDur":"138278","EndPh":"0.92"},
{"SolarA":"79.5","Rev":"3300","VisStar":"2017-12-15 09:31","AstroA":"230.7","VisEnd":"2017-12-16 23:55","StarPh":"0.12","Round":"130000","VisDur":"138259","EndPh":"0.92"},
{"SolarA":"78.1","Rev":"3301","VisStar":"2017-12-17 09:23","AstroA":"229.2","VisEnd":"2017-12-18 23:47","StarPh":"0.12","Round":"130000","VisDur":"138228","EndPh":"0.92"},
{"SolarA":"76.7","Rev":"3302","VisStar":"2017-12-19 09:17","AstroA":"227.7","VisEnd":"2017-12-20 23:29","StarPh":"0.12","Round":"130000","VisDur":"137542","EndPh":"0.92"},
{"SolarA":"75.4","Rev":"3303","VisStar":"2017-12-21 09:12","AstroA":"226.1","VisEnd":"2017-12-22 23:21","StarPh":"0.12","Round":"130000","VisDur":"137392","EndPh":"0.92"},
{"SolarA":"74.0","Rev":"3304","VisStar":"2017-12-23 09:06","AstroA":"224.5","VisEnd":"2017-12-24 23:03","StarPh":"0.12","Round":"130000","VisDur":"136627","EndPh":"0.92"},
{"SolarA":"72.7","Rev":"3305","VisStar":"2017-12-25 08:59","AstroA":"222.9","VisEnd":"2017-12-26 22:54","StarPh":"0.12","Round":"130000","VisDur":"136509","EndPh":"0.92"},
{"SolarA":"71.6","Rev":"3306","VisStar":"2017-12-27 08:52","AstroA":"222.3","VisEnd":"2017-12-28 01:42","StarPh":"0.12","Round":"60000","VisDur":"60634","EndPh":"0.48"}]
```


json, xml or votable reponse



Client visualization

The XMM-Newton & Integral: Observation Info Use Case

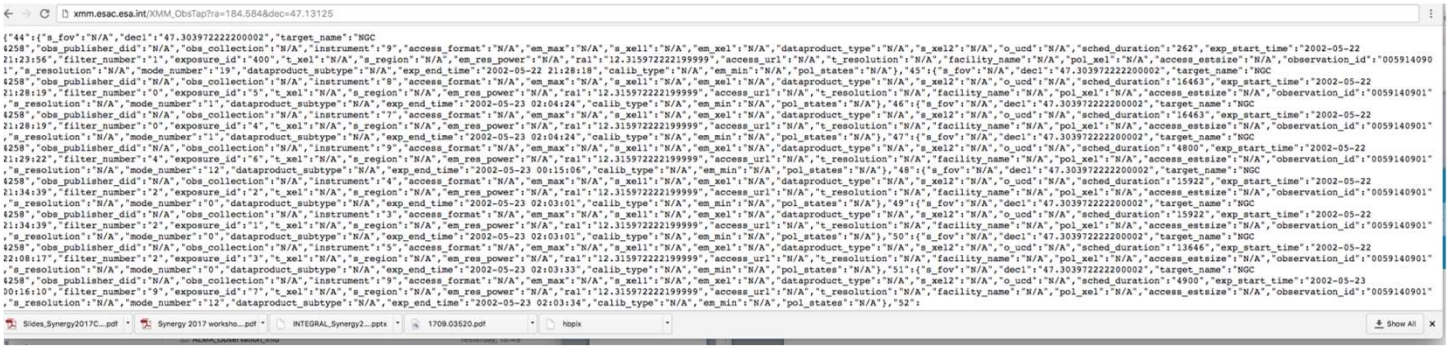
XMM-Newton

http://xmm.esac.esa.int/XMMVisCheck?
coordinates=equatorial&
ra=192.063458&
dec=17.77394

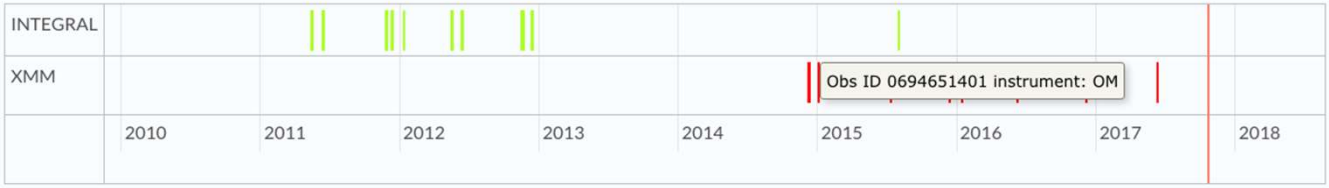
INTEGRAL

http://integral.esac.esa.int//IntegralVisCheck?
coordinates=equatorial&
ra=192.063458&
dec=17.77394

Standard REST web service



json, xml or votable reponse



Client visualization

Previous and next steps

Actions already taken:

- *Presented during the last ESA/ESO Operations meeting at ESAC (Oct-2017)*
- *Informal presentation in the last IVOA meeting (Chile Oct-2017) Data Model Panel.*
    - *The idea was very well received for all groups, in particular LSST team.*
- *First contacts with potential interested groups (NuSTAR)*

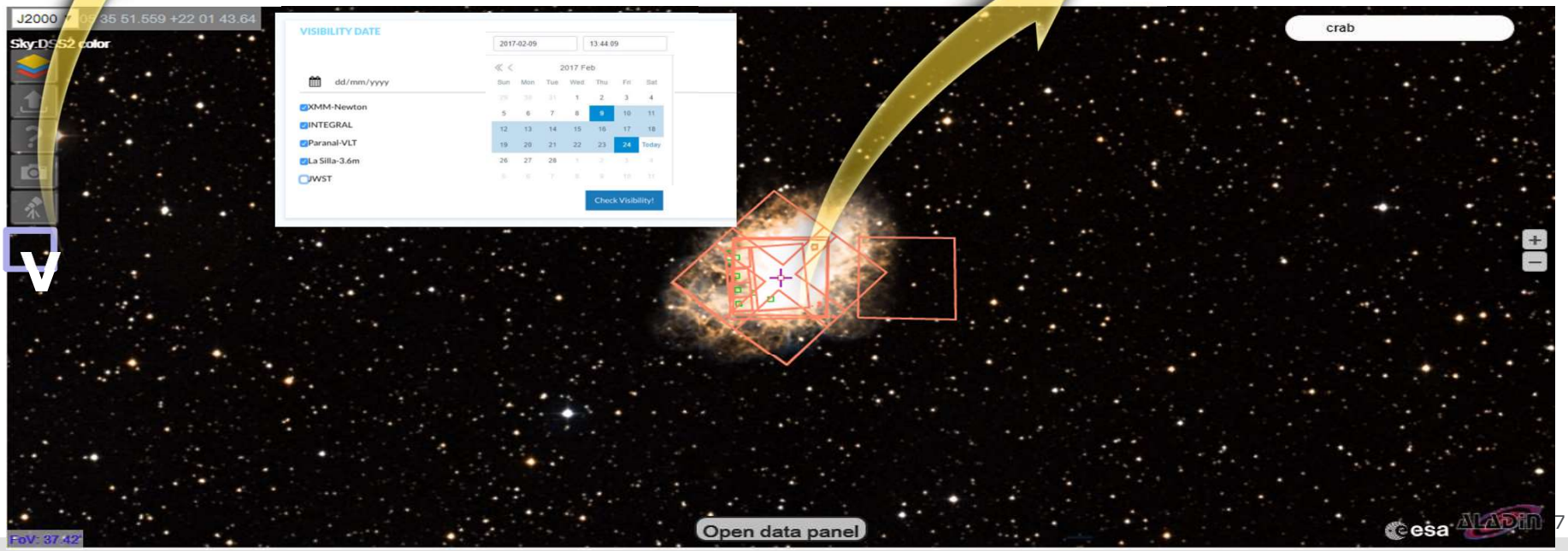
Goal:

- *Prepare first IVOA working note in collaboration with other interested groups*
- *Present this note in the next IVOA interoperability meeting (end of may 2018)*

ESASky v3.0: Time-Domain exploration

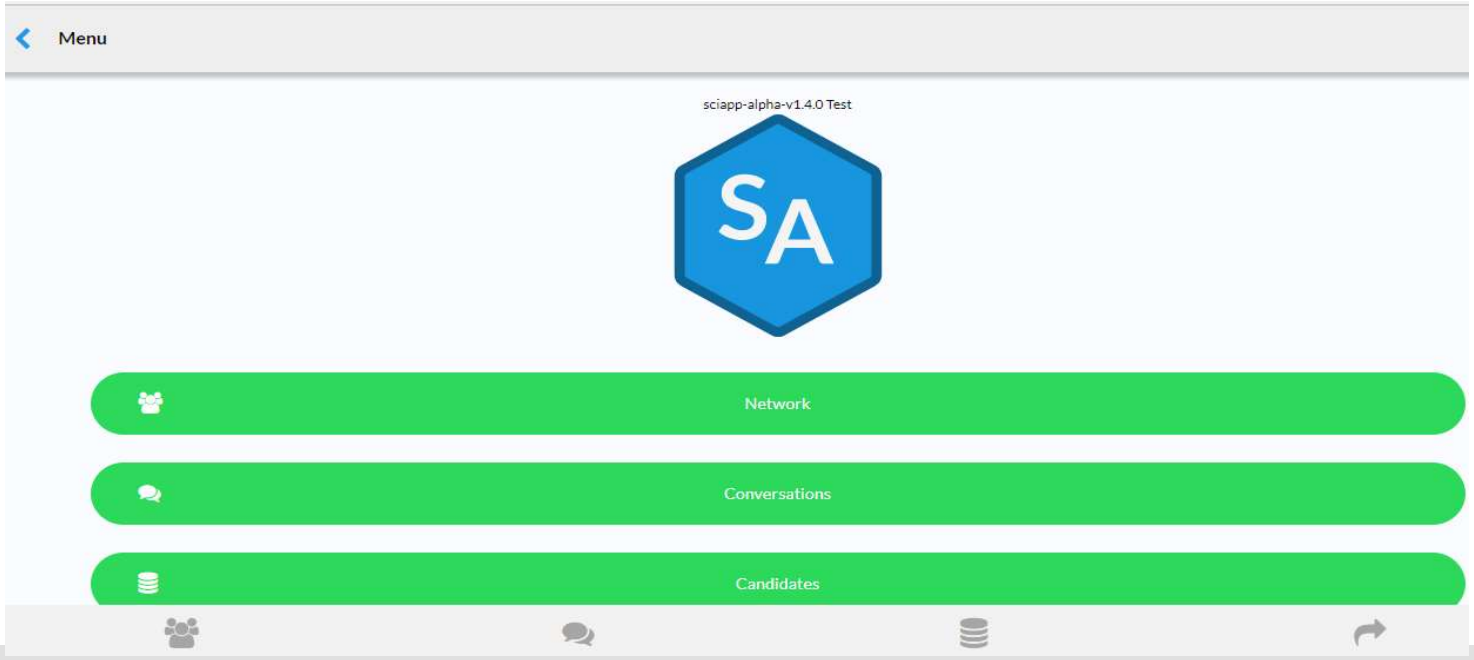
Constraint visibility checker option

Footprints for scheduled observations

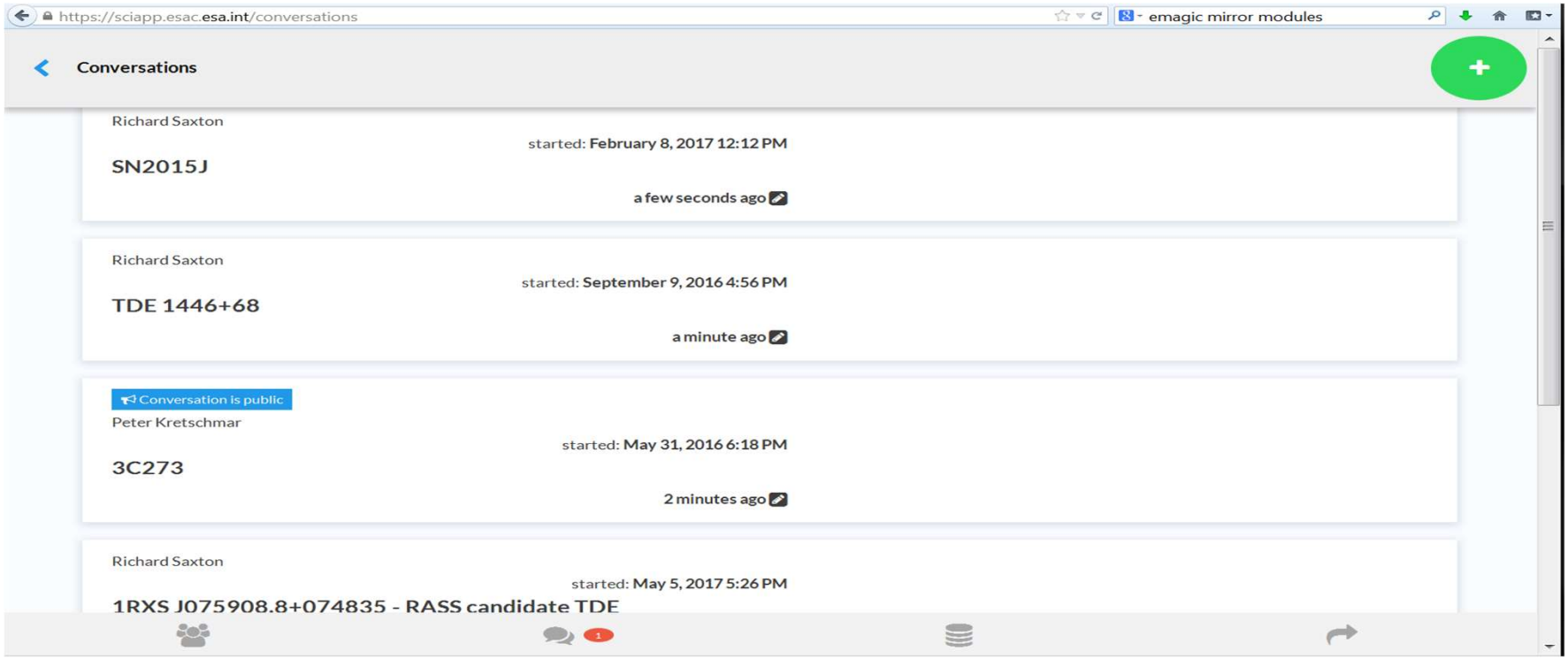


Scientific collaborative tool: SciApp

- **Web tool focused on information sharing between scientists**
- **Based on astronomical source conversations (candidate list DB)**
- **Interface with services provided by observing facilities**
- **Observation campaign functionality**

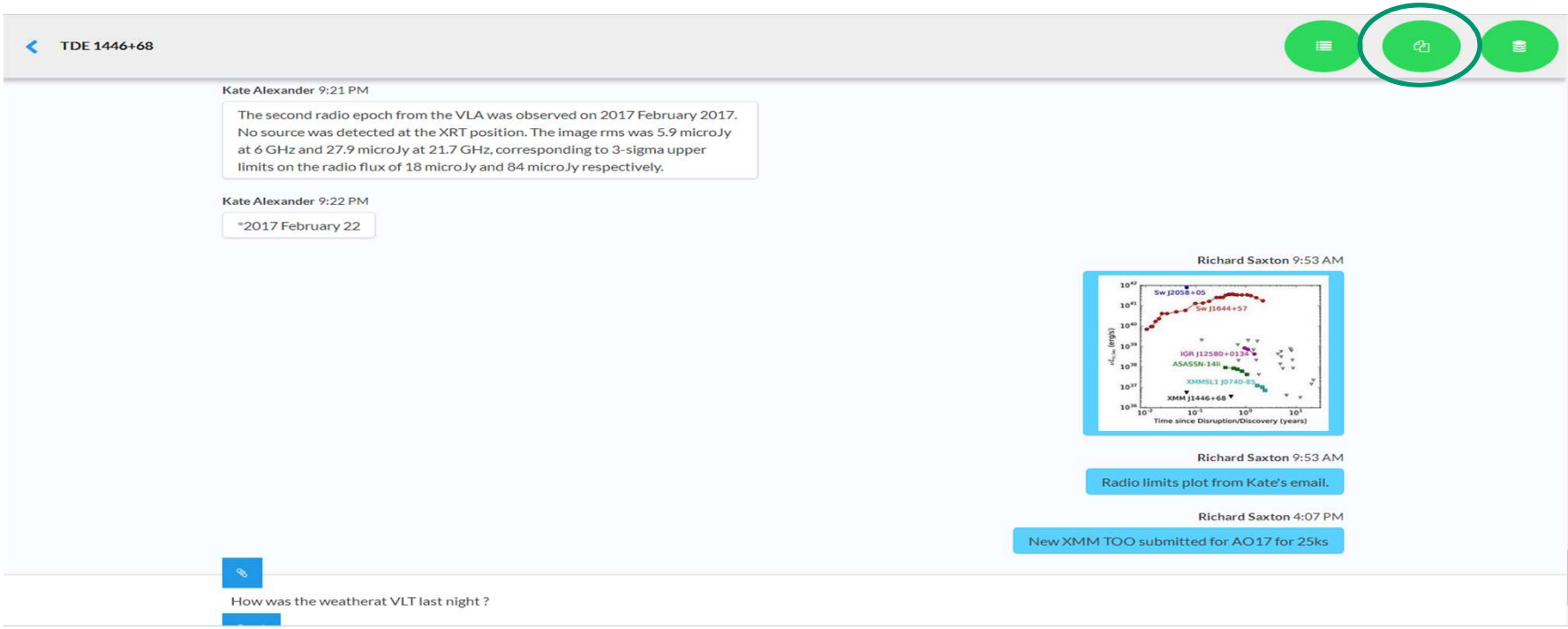


SciApp: conversations

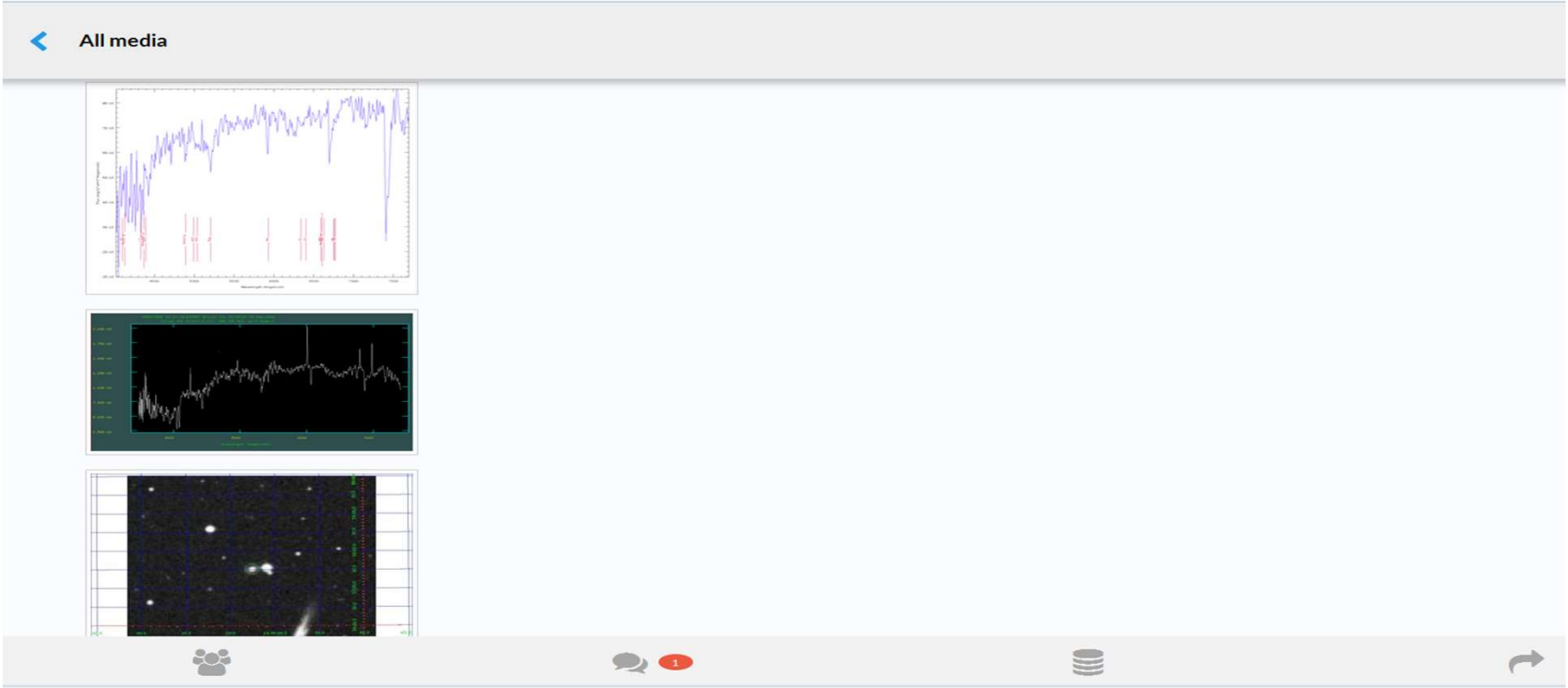


Set of public and private conversations

SciApp: a conversation

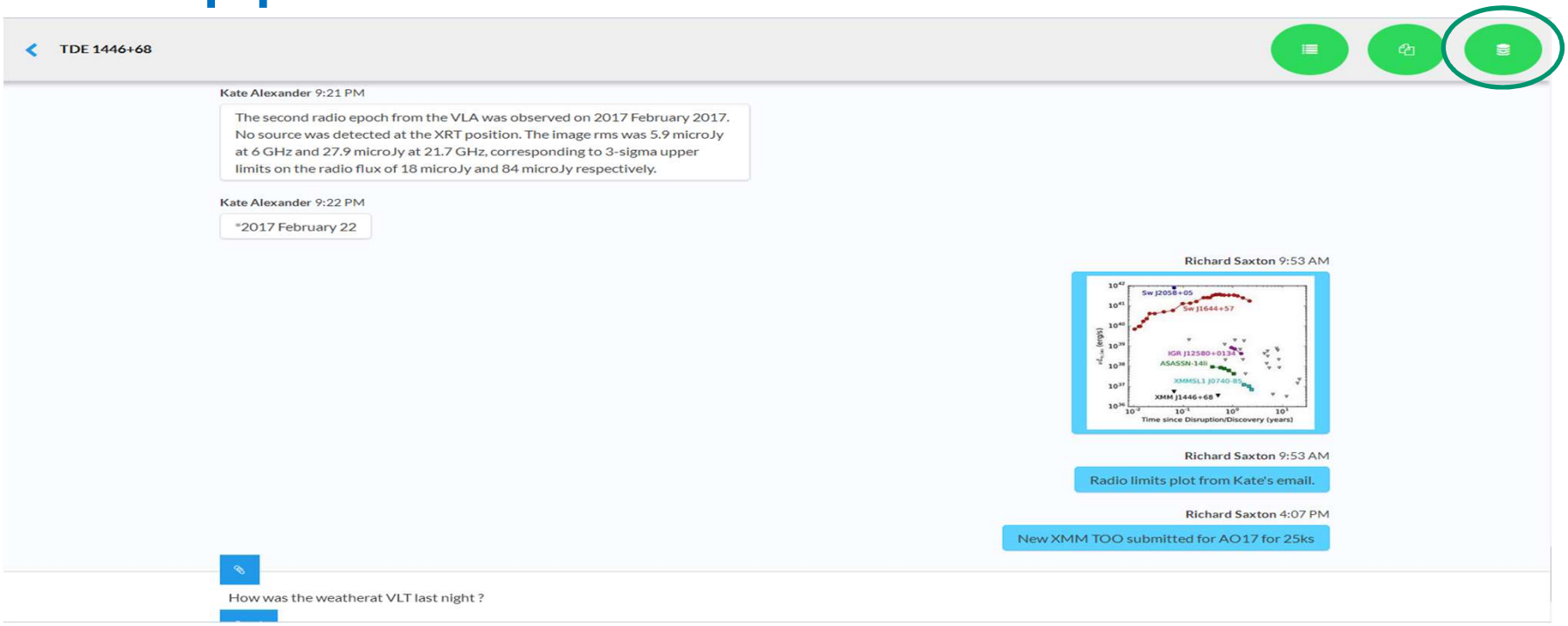


SciApp: file repository

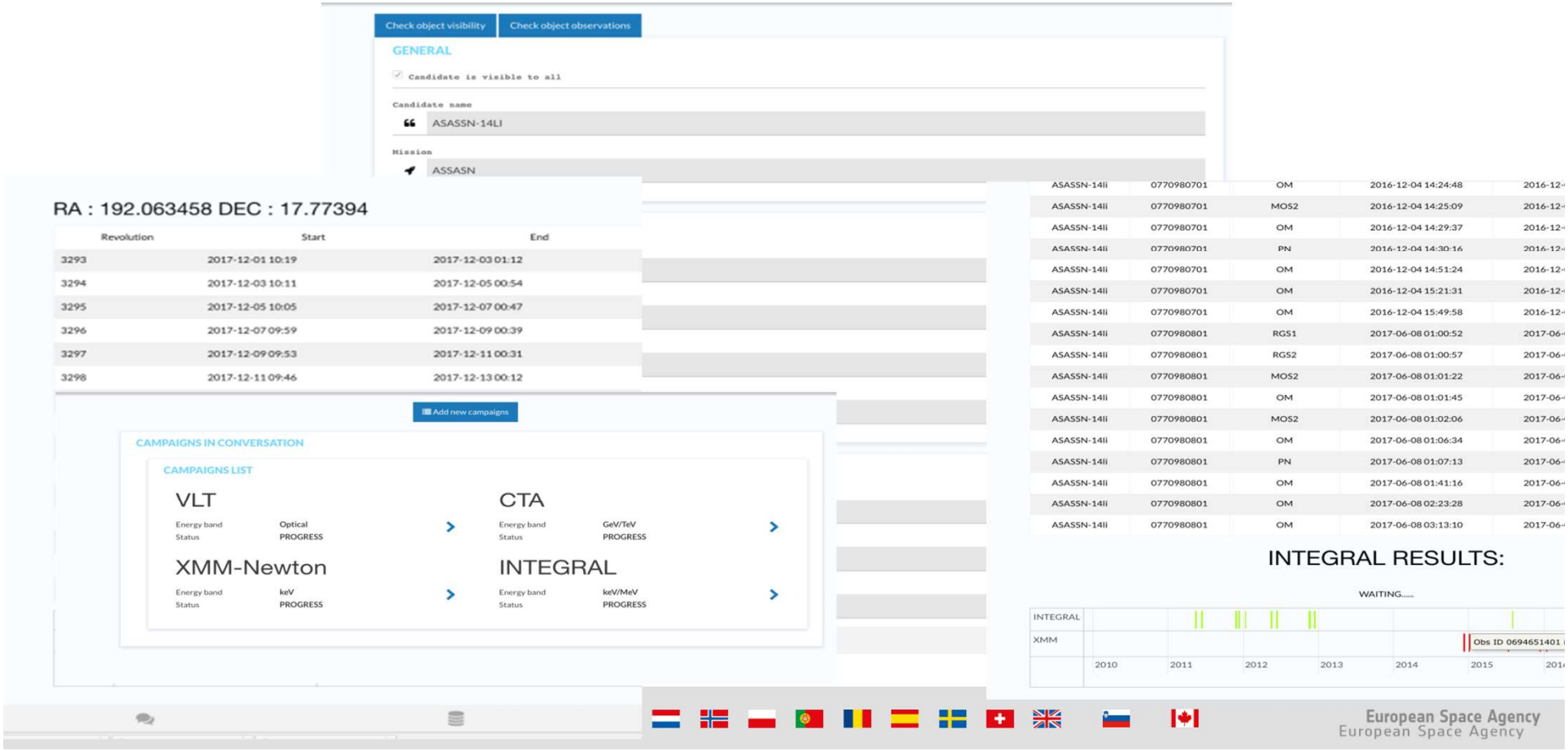


File / image repository per conversation thread

SciApp: a conversation



SciApp: target information



Summary

Standarize visibility checkers and plan/scheduled observation information as services

Prepare this standardization in collaboration with other groups under the VO umbrella

Integrate these services into applications, such as: ESASky, SciApp,...