

A joint MegaCam/eRosita survey

M. Pierre *CEA Saclay*

eROSITA is part of SRG

a German-Russian collaboration

eROSITA (0.1-10 keV): Germany

Institutes:

Max-Planck-Institut für extraterrestrische Physik, Garching/D

Universität Erlangen-Nürnberg/D

Universität Tübingen/D

Universität Hamburg/D

Astrophysikalisches Institut Potsdam/D

Max-Planck-Institut für Astrophysik/D

Space Research Institute IKI, Moscow/Ru

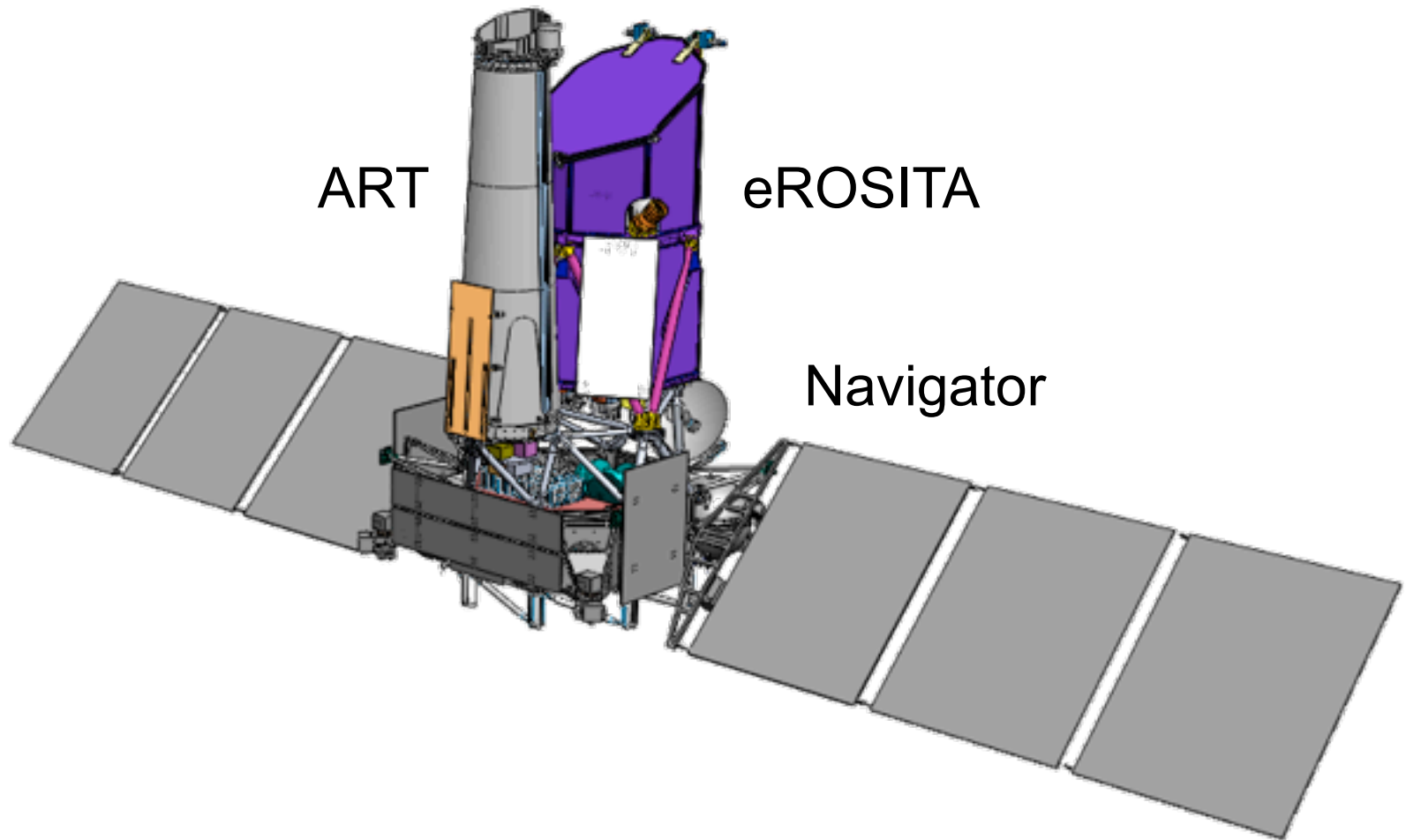
Universität Bonn

Universität München (LMU)

ART + launcher (~5-30 keV): Russia

Launch date: early 2016

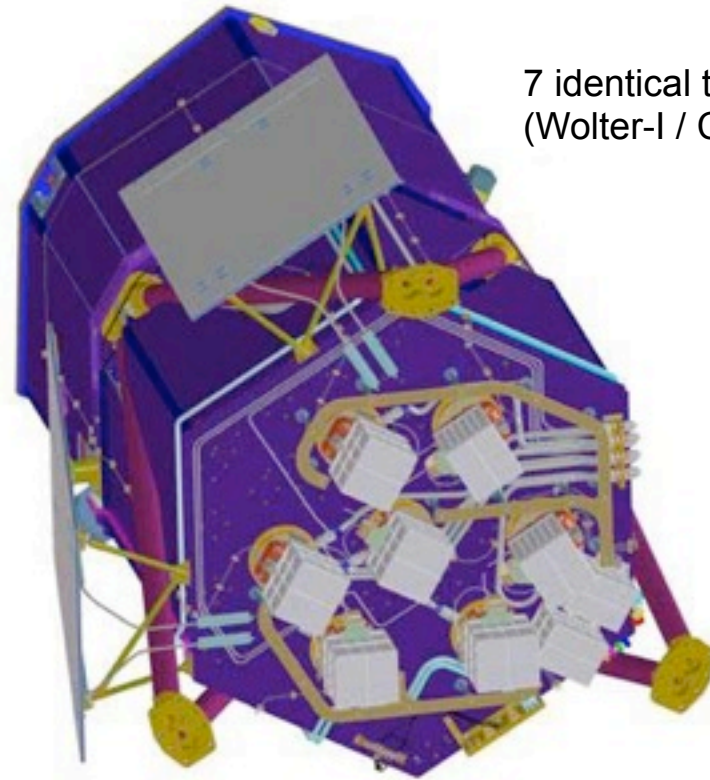
Spektrum-Roentgen-Gamma



eROSITA Telescope



3265 mm w/o Cover



7 identical telescopes
(Wolter-I / CCD-camera)

1941 mm

X-ray Galaxy Clusters known today

- ~ 200 – 300 from Einstein (1978 – 1981)
- ~ 2000 published from ROSAT (1990 -2014)
- ~ 1000 new objects from XMM-Newton archival data
- A few hundreds from XXL
- currently ~ 20 with redshift > 1 and confirmed in X-ray

Design Driving Science

- Constrain parameters of Dark Energy



- Detectability of 100.000 Clusters of Galaxies, $z < 1.5$
 - All-sky survey with sensitivity $6 \times 10^{-14} \text{ erg cm}^{-2} \text{ s}^{-1}$
 - Deep survey field(s) ($\sim 100 \text{ sqdeg}$) with $1 \times 10^{-14} \text{ erg cm}^{-2} \text{ s}^{-1}$
 - Individual pointed observations

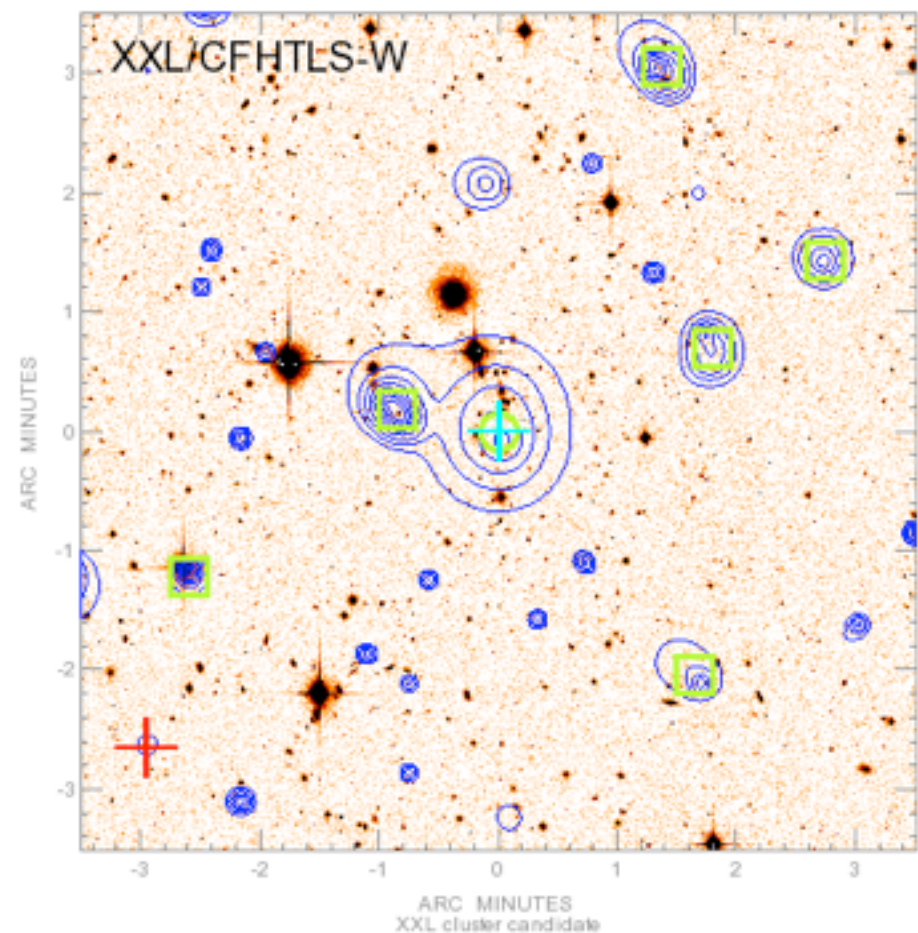
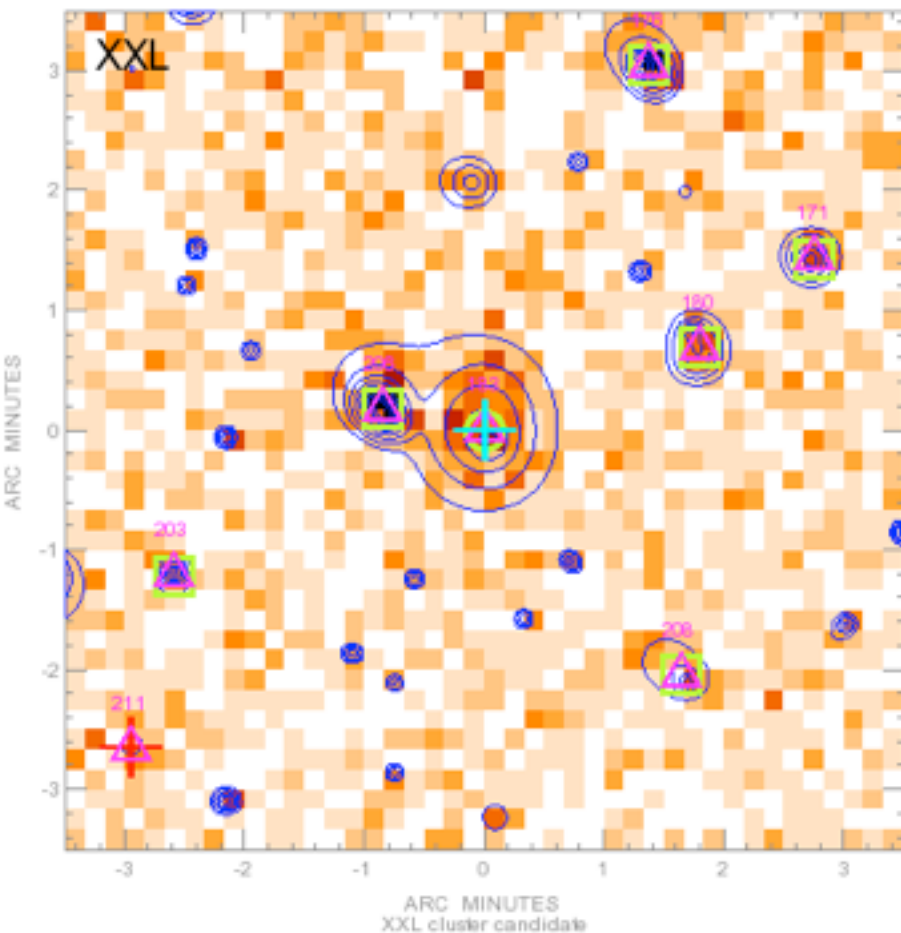


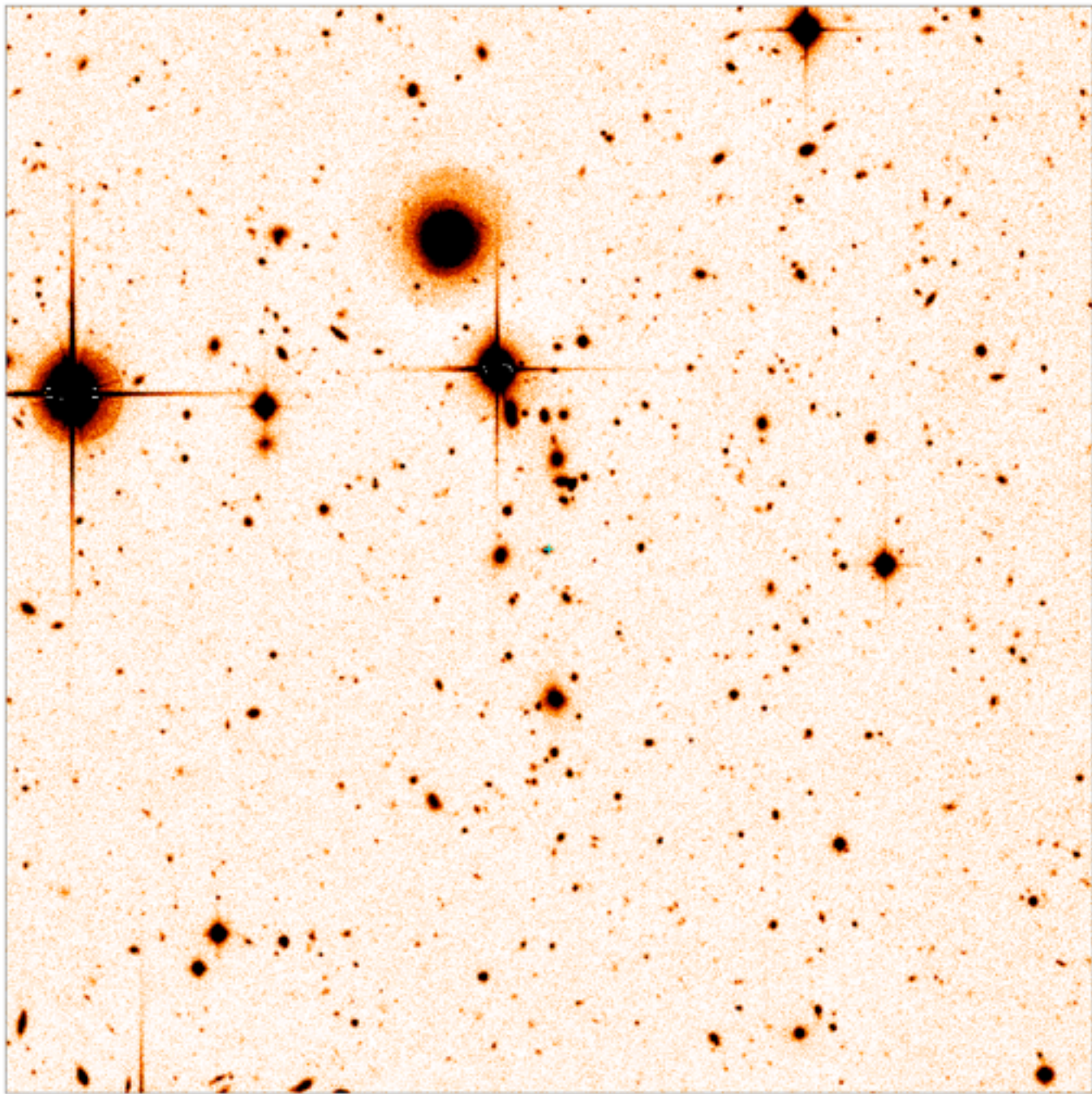
RASS vs eRASS comparison

- HEW $\sim 30''$ vs $80''$ (survey mode)
- Depth : eRASS some 20 times deeper than RASS : 10^5 vs 10^6 sources
- The proposed optical depths for NSLS, will be well suited to the ID and photo-z of the cluster and AGN population

Good optical data are necessary for the identification of X-ray sources

Example with cluster XXL n0242 $z \sim 0.6$ XMM PSF $\sim 6''$



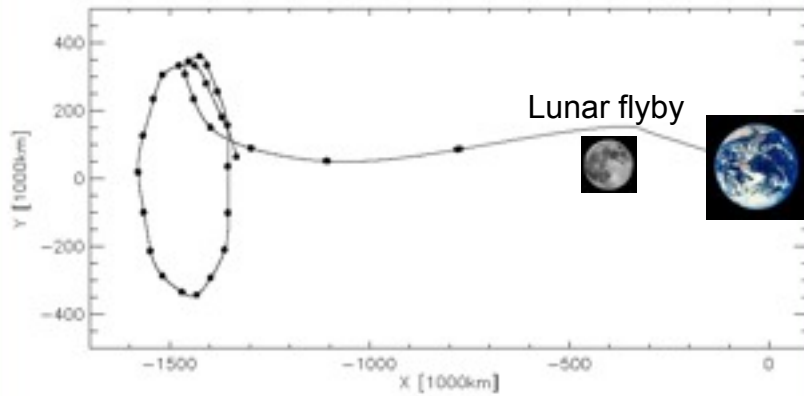
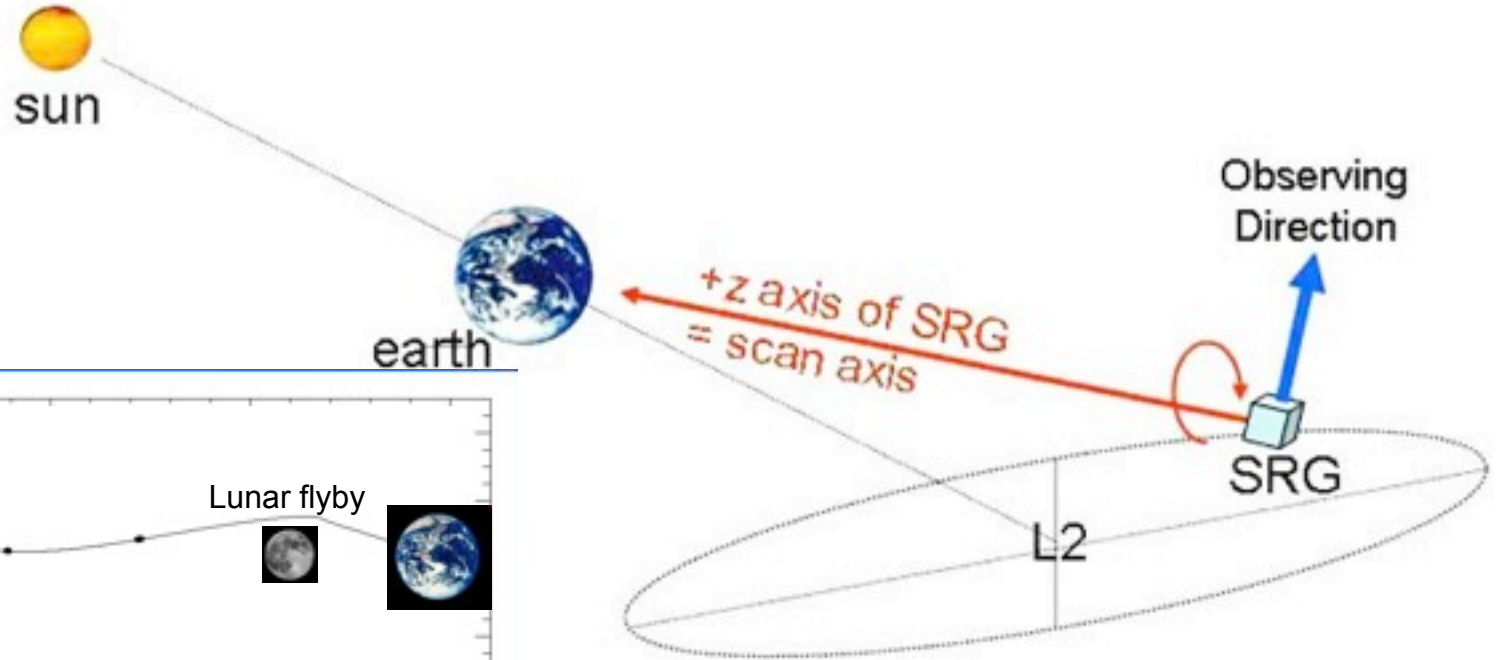




Monday, June 2, 2014

Mission Scenario

M. Fürmetz, 2010



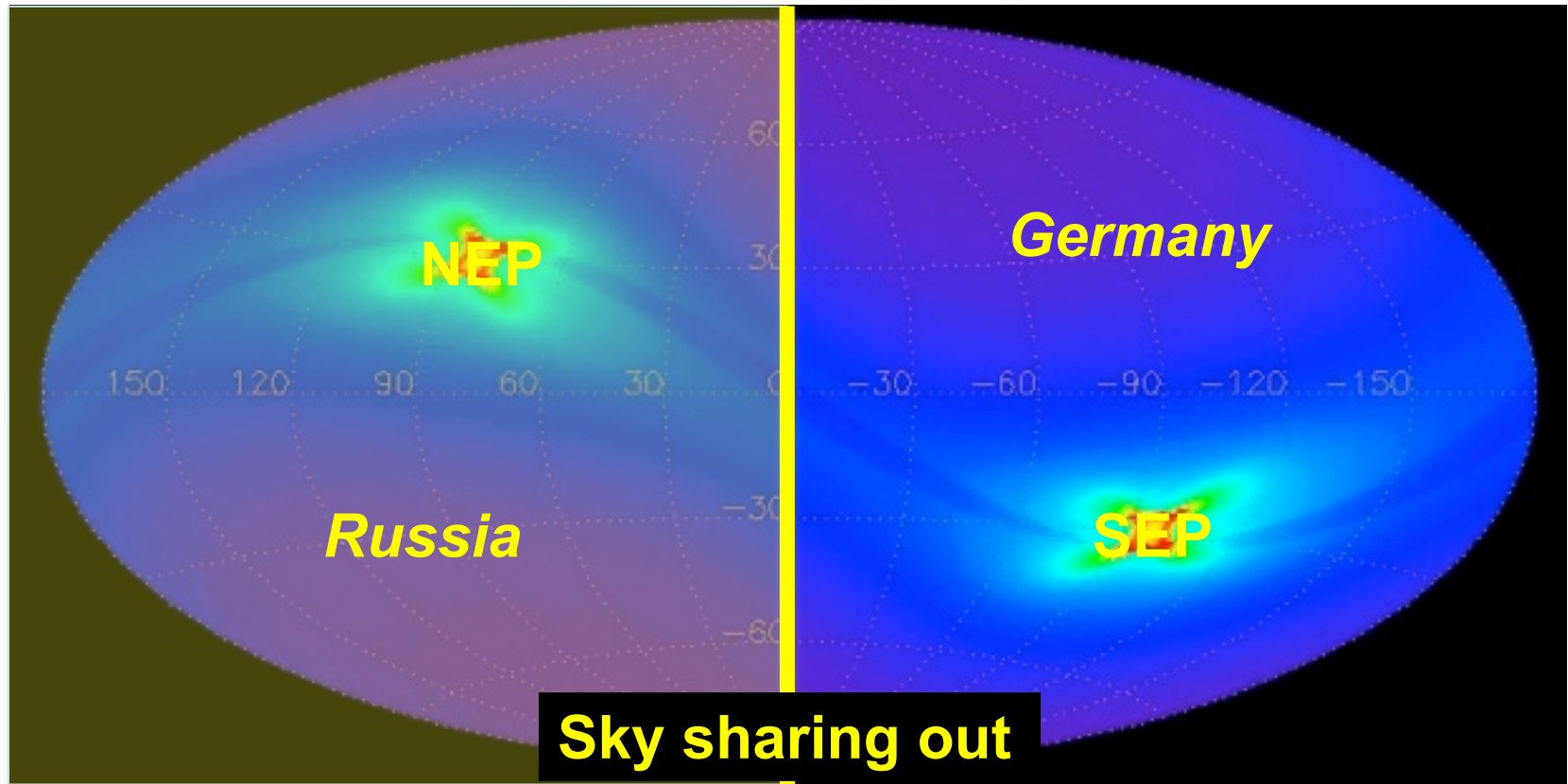
Angle between sun and Earth max. 13°
Scan-Axis always pointing towards Earth (antenna!)
Scanspeed less than in LEO, $\sim 4\text{h/revolution}$

Launch foreseen
by the beginning of 2016

Survey duration: 4 years

eROSITA Exposure - 4 years

(galactic projection)



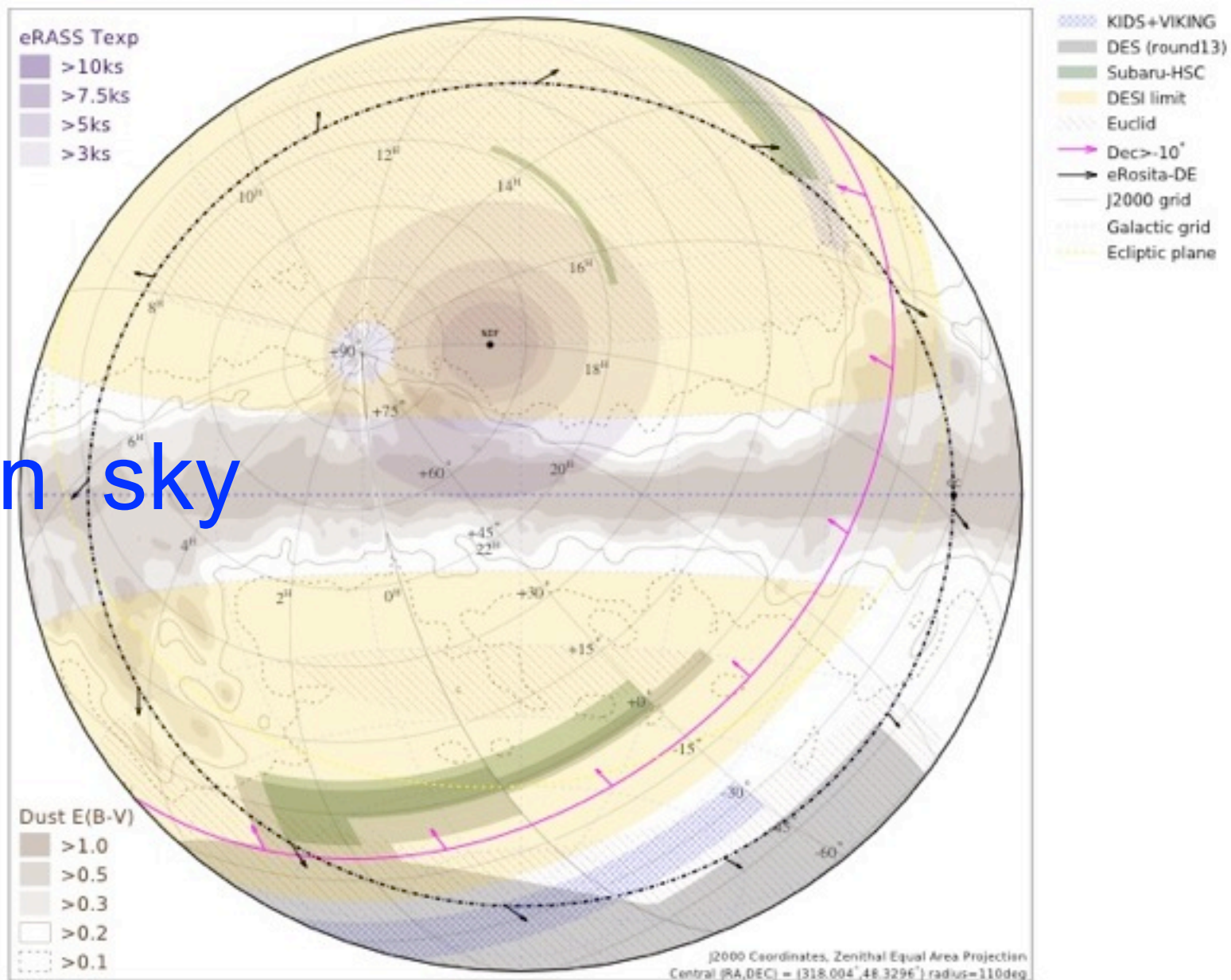
3ksec

5ksec

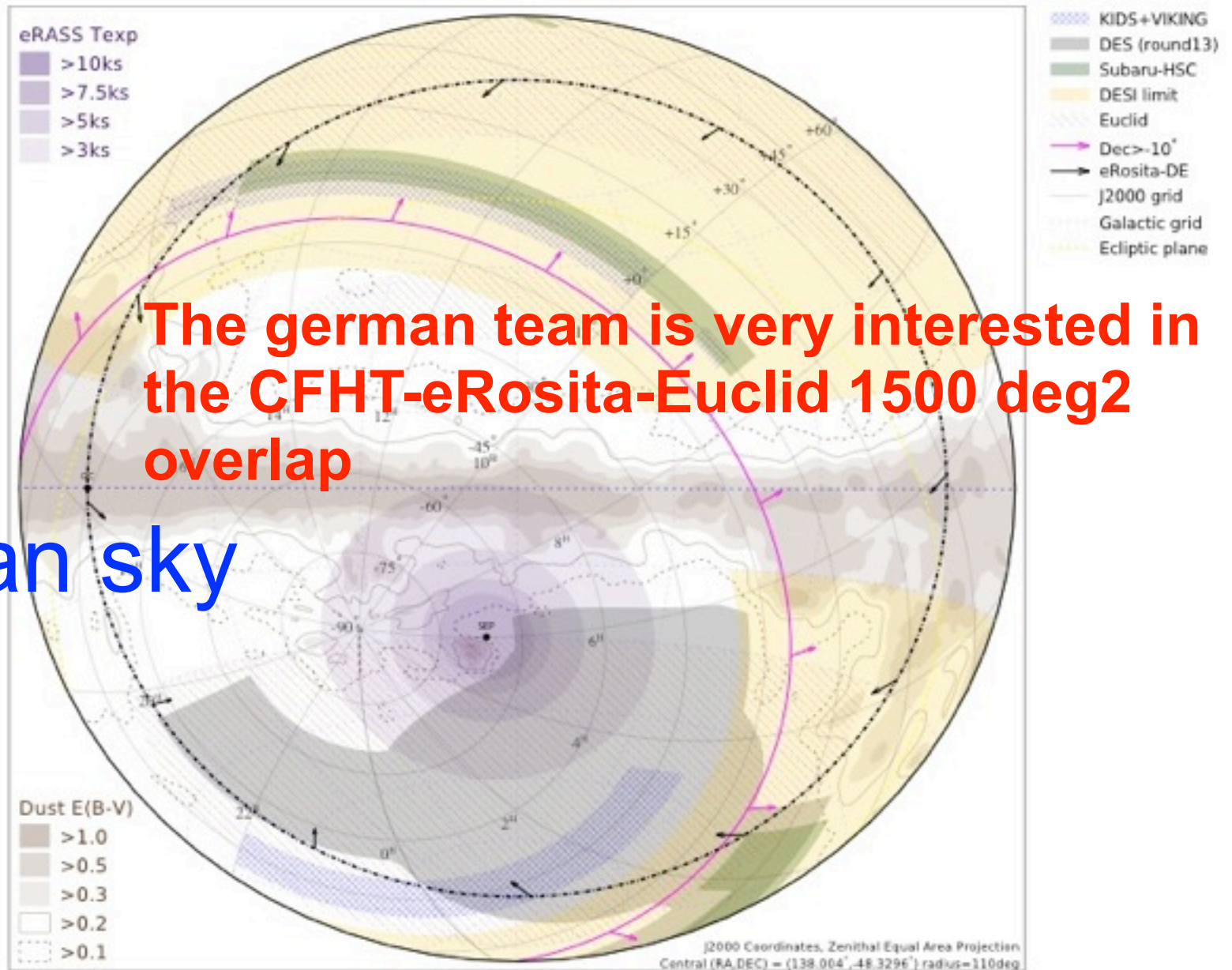
30ksec

Multi-wavelength coverage of wide area surveys - East Galactic Hemisphere

Russian sky



Multi-wavelength coverage of wide area surveys - West Galactic Hemisphere



! WARNING !

If the (raw) data are made public,
eRosita will not need to
collaborate with FR or CA !

Summary

- Marked interest from the German and Russian sides in the NSLS
- For the moment, they are pursuing science independently
- A German document is available for external collaborations
- **Unique** opportunity for the French and Canadian communities to have access to the **unique** X-ray data set. → **do not miss it!**

FIN