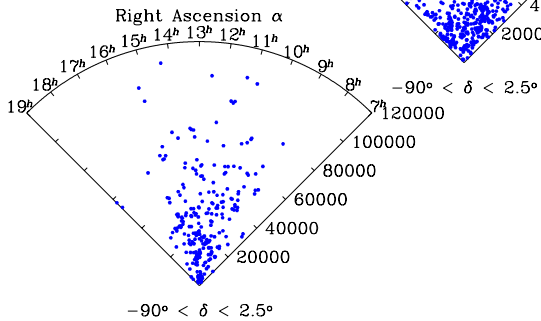
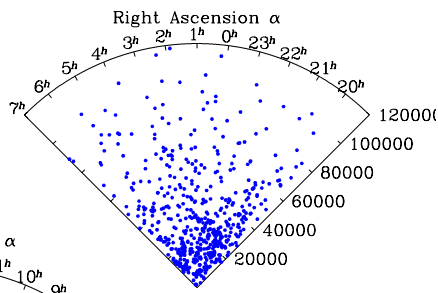
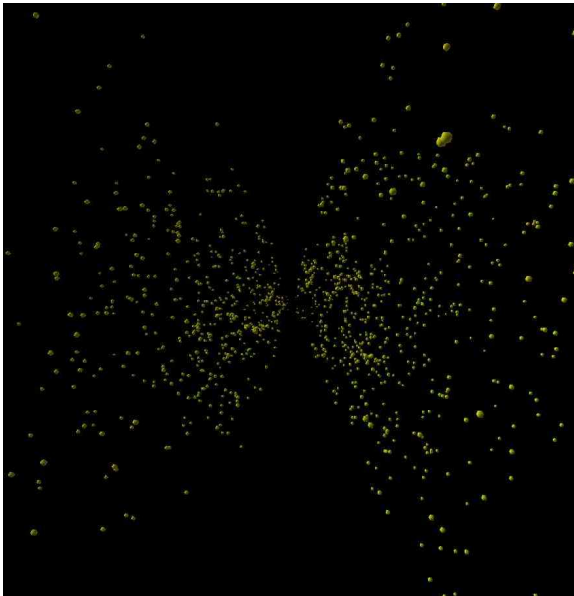
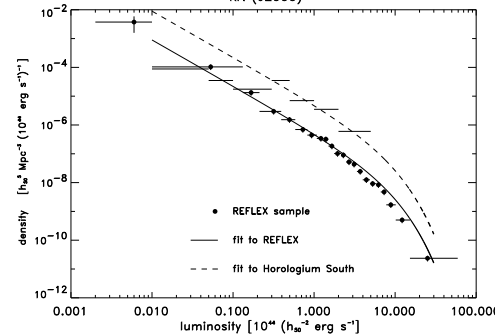
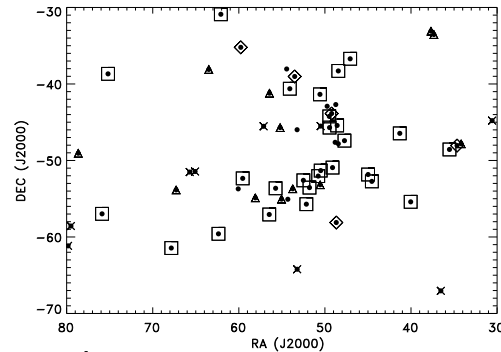


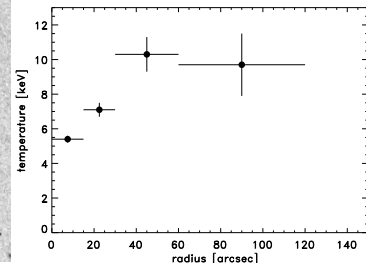
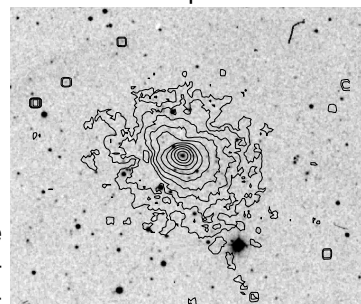
We are in the process of completing our survey of X-ray galaxy clusters in the ROSAT All-Sky Survey down to nominal X-ray flux limits of $2 \times 10^{-12} \text{ erg s}^{-1} \text{ cm}^{-2}$ in the ROSAT energy band (0.1 – 2.5) keV. The sample excludes the galactic plane below $|b_{II}| < 20 \text{ deg}$ and other crowded regions. It results from the combination of the published NORAS and REFLEX catalogues as well as their extensions to lower flux and contains about 1 500 clusters with redshifts $z \leq 0.6$. It will be used in combination with improved cluster scaling relations for precise cosmological tests, with particular regard to the the shape and amplitude (biasing) of the matter power spectrum up to $1.0 h^{-1} \text{ Gpc}$, its normalization σ_8 , and the equation of state of the dark energy w . The survey also provides insights into cosmography and the potential to find interesting and rare objects.



3-dimensional representation of the complete survey and cone diagrams of the redshift distribution of X-ray clusters in the southern hemisphere. The radial axis cz in units of km/s. Superclustering on 100 Mpc scales (10,000 km/s) is clearly seen. Sample dilution towards larger distances is introduced by the X-ray flux limit.



Abell (dots only) and X-ray cluster distribution in the Horologium-Reticulum supercluster. The lower panel shows the X-ray luminosity function of the southern concentration of the superclusters compared to that of REFLEX. The density of X-ray luminous clusters is about 10 times and the underlying dark matter density about 3 times higher than the cosmic mean, indicating that the southern and northern concentration in the supercluster are close to collapse.



RXCJ1504-0248, the most prominent cooling core cluster at $z < 0.4$ discovered in the REFLEX survey. The CHANDRA image (right) shows an extremely compact cluster and the temperature profile (left) shows the cooling core structure.