The Updated International Joint Project for Research of Dynamics and Physics of Asteroids

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Outline

- Current IJP
- IJP telescopes
- New possibilities of IJP
- Telescopes, allocated time & planning
- Statistics of observations and some astrometry from RTT150
- New spectral possibilities for observing at the RTT150
- Some results of astrometrical measurements of asteroids obtained at the Mobitel and AZT8 telescopes
- Conclusions

Current IJP

Main topics:

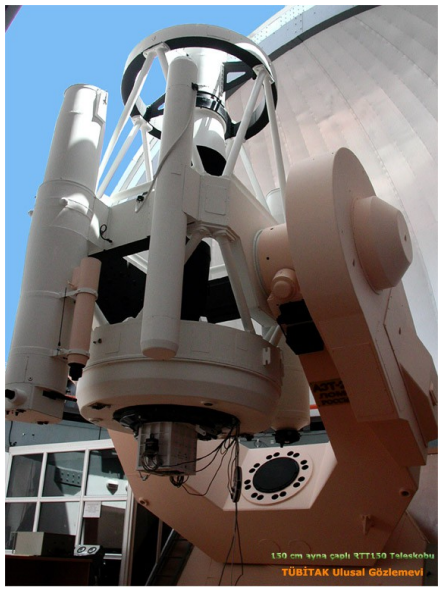
- Gaia-FUN-SSO;
- *Determination of asteroid masses;*
- Stellar occultations by asteroids.

Research of small gravitational effects in dynamics of selected asteroids, in particular mass determination for large asteroids.
In this sense, IJP can make a complementary science to the Gaia mission (2013).
The most valuable periods for astrometrical measurements of perturbed asteroids are before the beginning and in the end of Gaia mission, see *Hestroffer et al., (2008). Ground-based observations of solar system bodies in complement to Gaia. Proc. Ann. Meet. Fr. Soc. Astron. & Astroph. (SF2A-2008), p. 21.*

Institutions of the current IJP: IMCCE, KFU, TUG, IKU, NAO, and associated: ShAO, YAO, CAO, KASSC, Akdeniz University, NSFTC.

IJP telescopes

RTT150 of TUG (D=1.5m, F=11.6m, stare mode)



Mobitel of NAO (D=0.5m, F=3.0m, TDI mode)

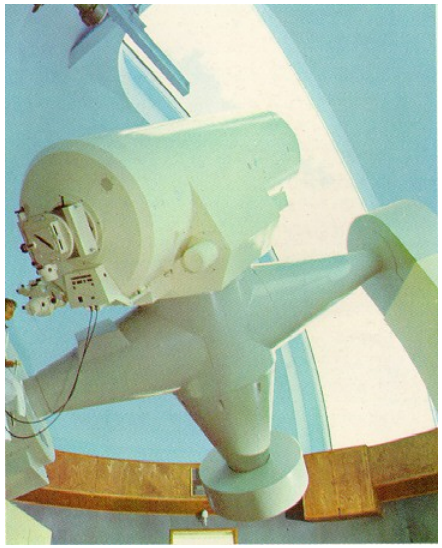
AZT8 of NSFTC (D=0.7m, F=2.8m, stare mode)

New possibilities of IJP. Telescopes suggested

Pic du Midi Observatory Telescope

D=1m, F=5.8m

Scale 0.82”/pix, FOV 5' x 4', stare mode



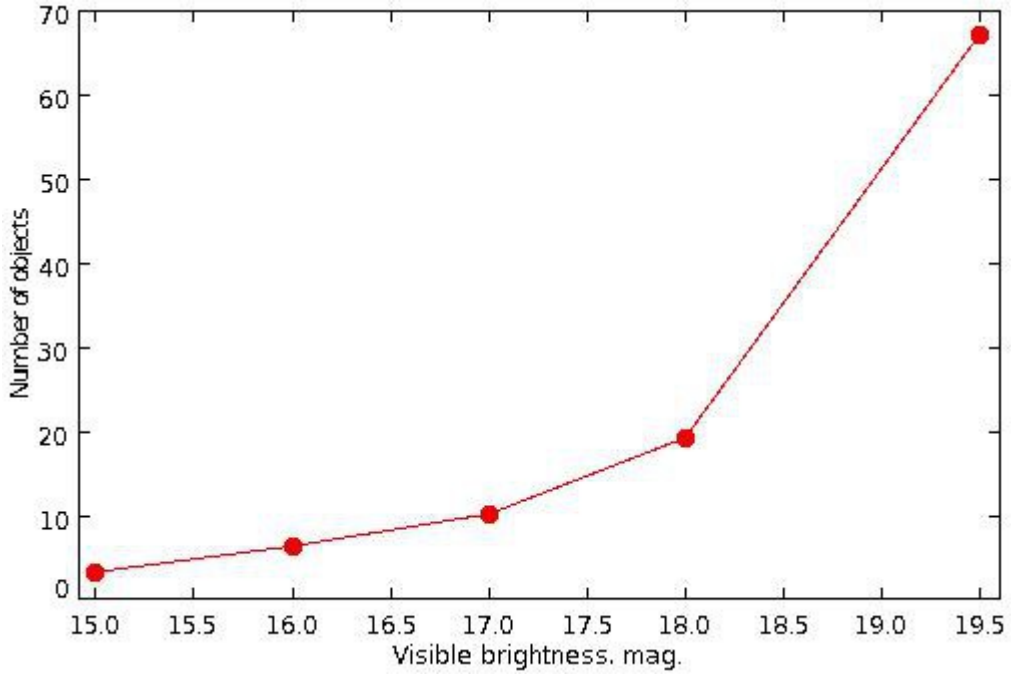
Shanghai Observatory (Yunnan Observatory Telescope)

D=1m, F=13.3m

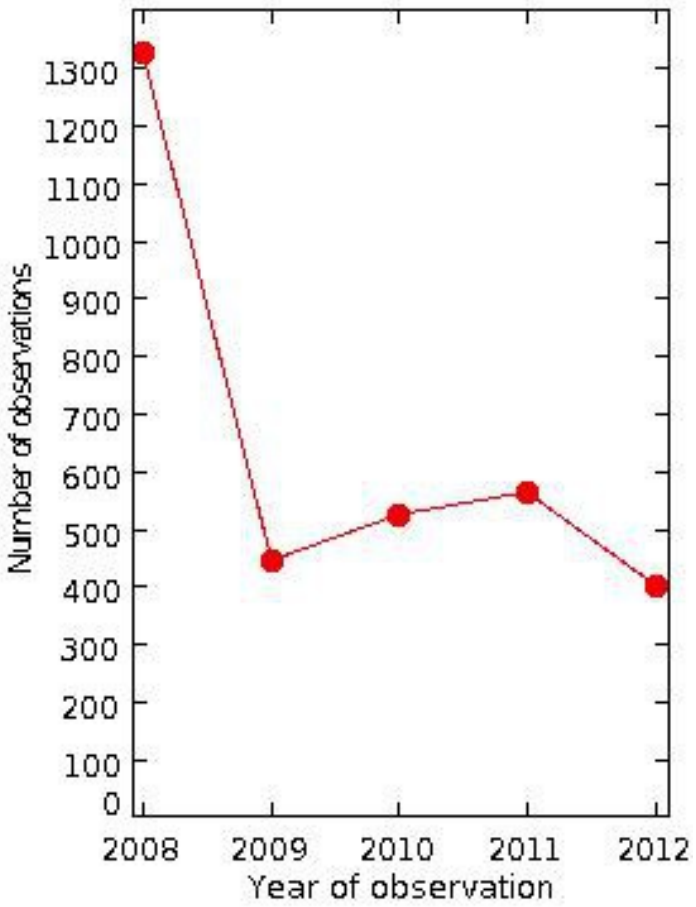
Scale 0.21”/pix, FOV 7' x 7', stare mode

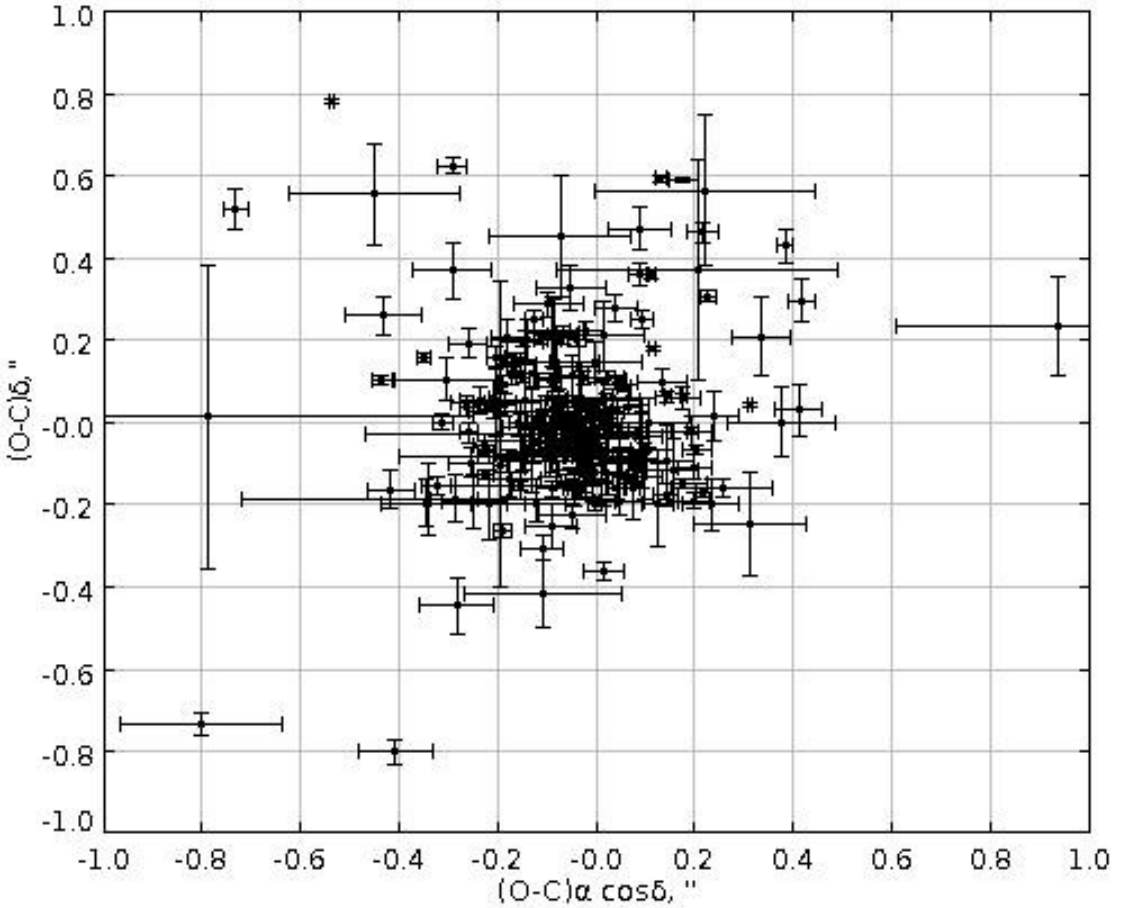
Telescopes, allocated time & planning of observations

An observational problem: the number of observational objects grows exponentially.



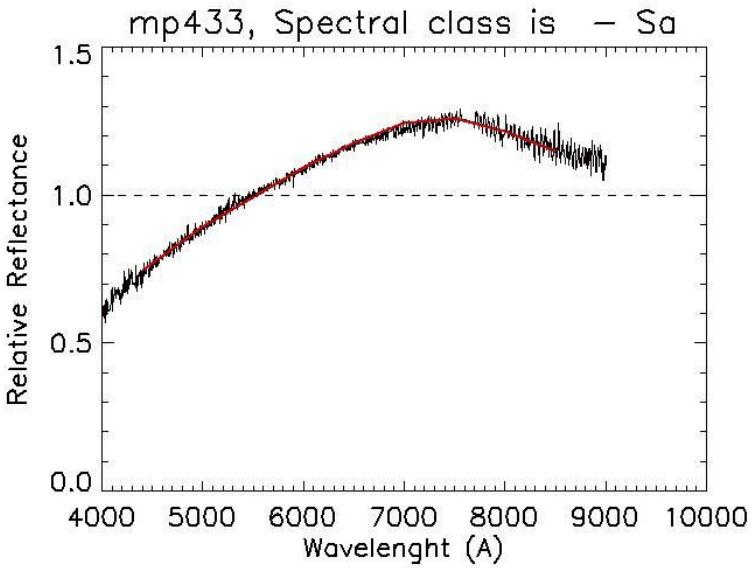
Statistics of observations & some astrometry from RTT150

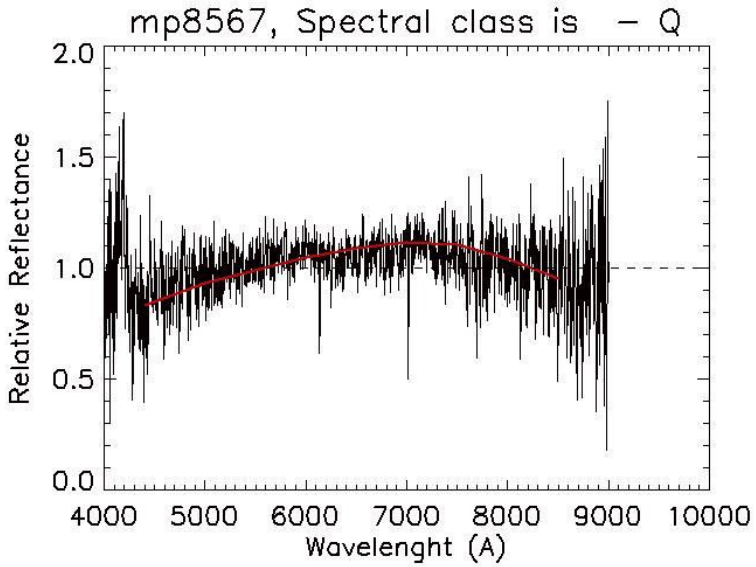




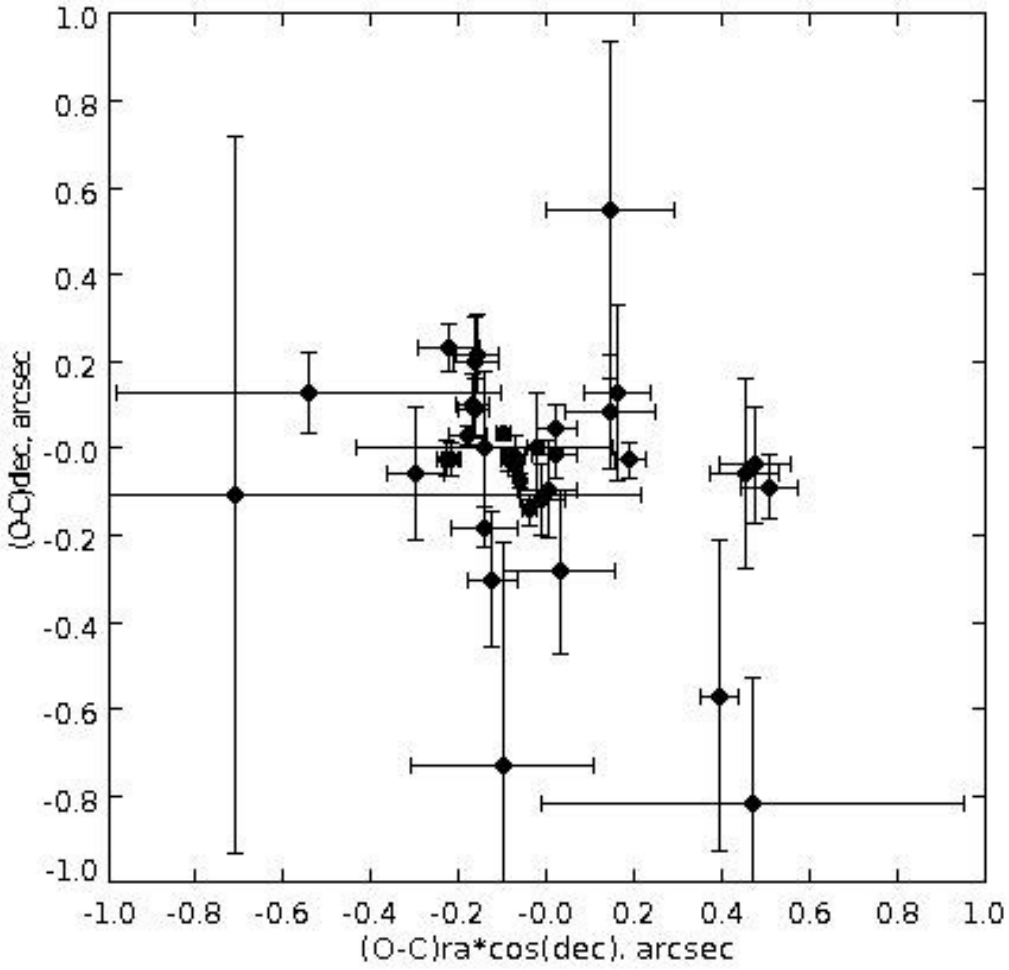
New Spectral Observations with TFOSC at RTT150

- Limiting magnitude is 16 for getting spectra.
- Magnitudes of (433) Eros and (8567) 1996 HW1 were 13.5 and 16.5 on the moment of observation.

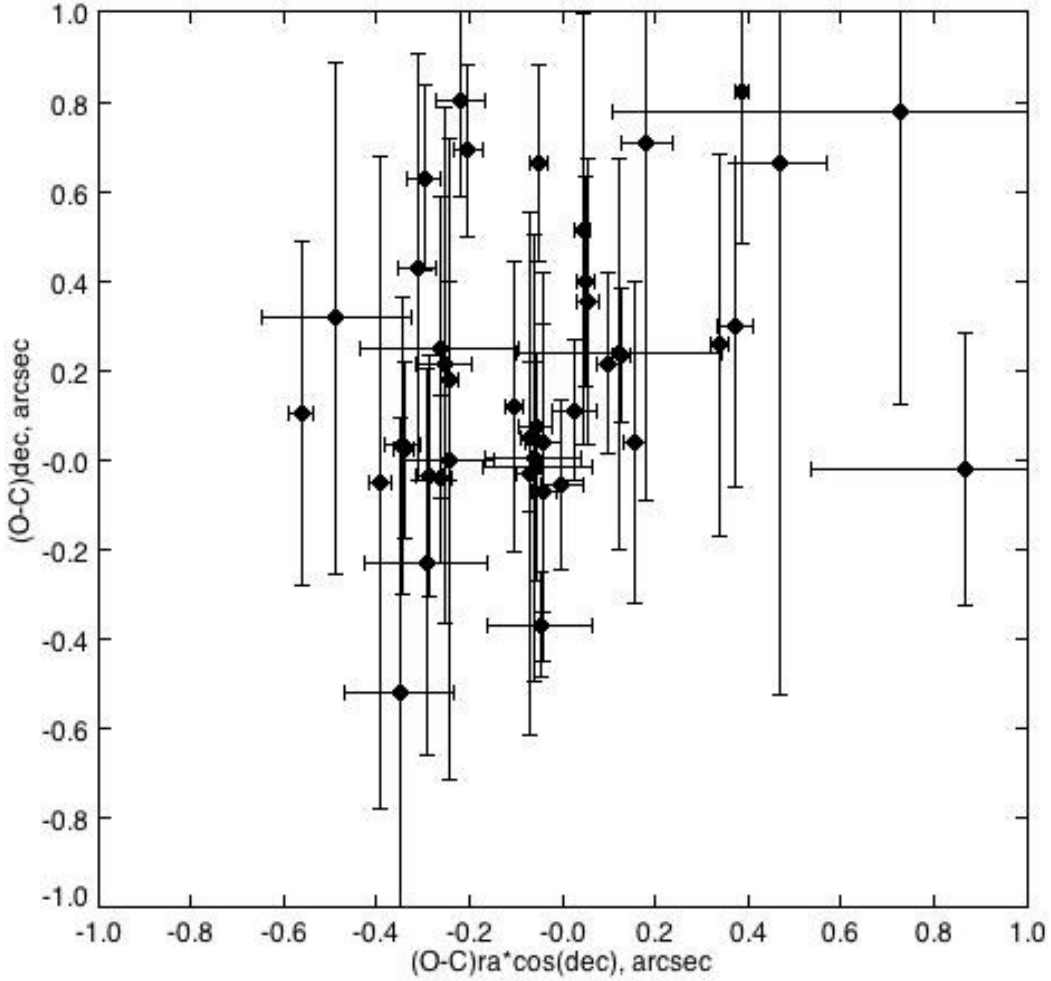




Some results of astrometric observations at the Mobitel telescope in 2011-12



Some results of astrometrical measurements of asteroids at the AZT8 telescope of NSFTC



Conclusions

- There were observed 82 perturbed asteroids for astrometrical measurements at the RTT150 in 2008-2012. The reduction of 2842 images of asteroids in UCAC3 has shown standard errors of a single position of 0.15” in R.A. and 0.13” in Dec.
- We expect to improve the astrometry positions by re-reduction with the UCAC4 reference catalog.