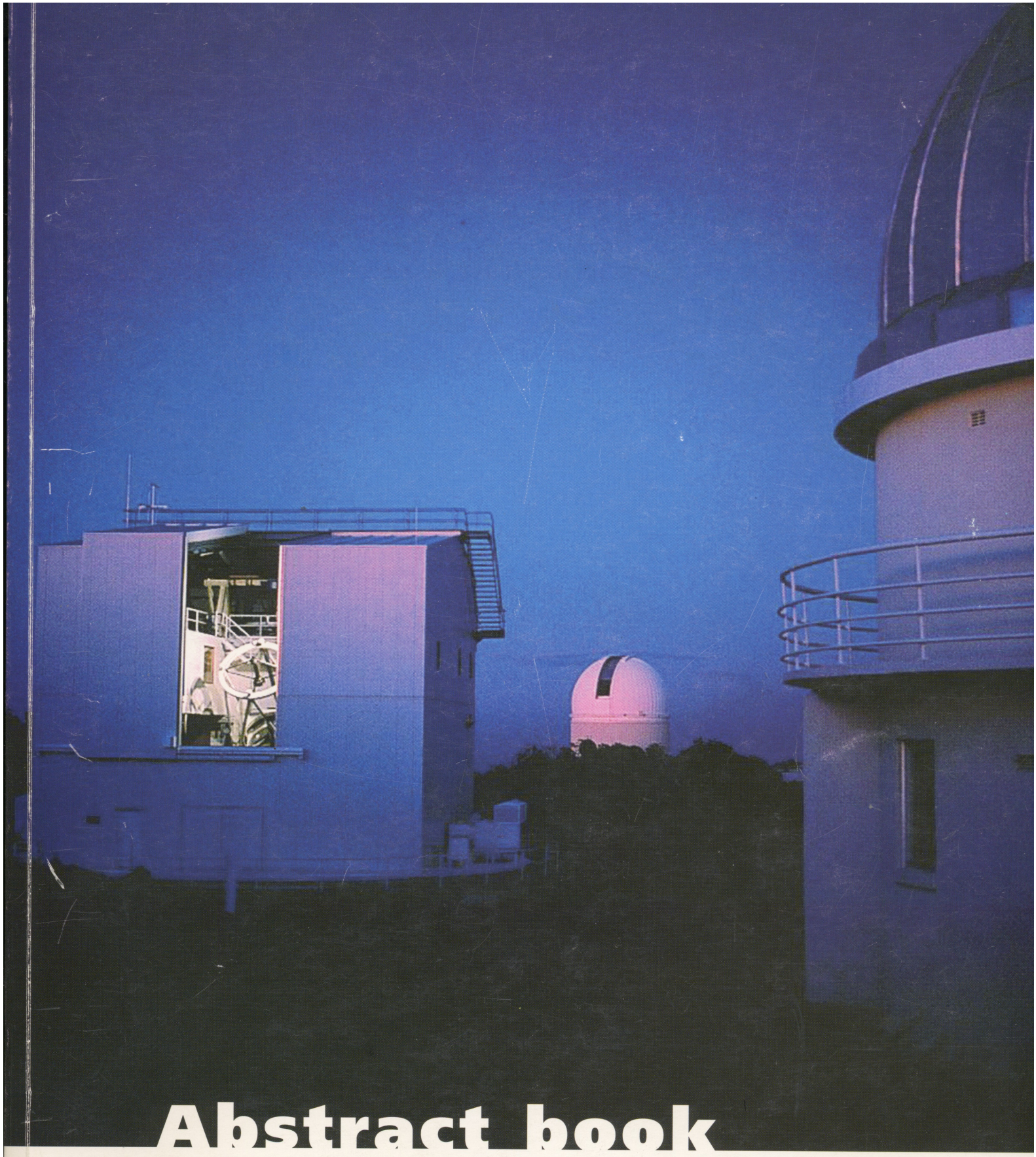

Abstract book

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1739 - ABOUT PROGRESS OF LINK OPTICAL-RADIO SYSTEMS

Pinigin Gennady - Nikolaev astronomical observatory

Results of the Joint Project between observatories from China, Russia, Turkey and Ukraine on improvement of linking optical and radio reference frames are discussed. The 300 extragalactic radio sources (ERS) observation program is extended at the expense owing to the increase of observation in a southern hemisphere up to -40 declination degrees. The analysis of ERS position (optical – radio) differences received from observations with different telescopes showed about 30 mas accuracy (standard error). For this purpose the observations of more than 150 ERS were used. The intermediate internal estimation of link between optical and radio reference frames was shown angle valjues in the range from 3 mas to 12 mas within accuracy of about 10 mas. A comparison of presented results with those of other investigations is made.

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Co-authors: Jin W, Aslan Z, Gumerov R

1740 - ASTROMETRY WITH LARGE UN-ASTROMETRIC TELESCOPES

Platais Imants - The Johns Hopkins University

Over the last few decades the number of large-sized telescopes has grown dramatically. Revolutionary CCD technology, in combination with the steadily increasing power of computers, has changed the way that observational data are being collected and reduced. These new telescopes were designed to produce sharp images of stars and galaxies and are nor necessarily optimized for astrometric measurements. Other drawbacks may include a small field-of-view, typically 30 arcmin or less. Further, there is presently a lack of reference stars in the range 18<V<25 where these telescopes are most efficient. I will discuss how to produce cutting-edge astrometry despite having such limitations and how this will contribute toward the ICRF densification efforts. The space-based HST CCD imagers can easily break the 1-mas precision limit, while ground-based telescopes are currently limited to 3-5 mas accuracies. It is expected that the Large Synoptic Survey Telescope will produce a 15 petabyte imaging database down to V=28 and over 30,000 square degrees of the sky, which opens new horizons to how we do astrometry. We astrometrists should be prepared to meet the challenges such projects will pose.

1741 - RELATING THE DYNAMICAL FRAME AND THE EPHEMERIDES TO THE ICRF

Standish E M - Caltech / JPL

JPL will continue its 30-year tradition of providing planetary and lunar ephemerides to the astronomical community, and the ephemerides will continue to be based upon the PPN formulism of relativity, with equations of motion correct and complete through order 1/c**2. The independent variable of the equations will continue to be "Teph", a relativistic coordinate time, rigorously equivalent to the IAU's newly-defined quantity, TCB, but having the added benefit that |Teph-TT| < 2 milliseconds of time. The ephemerides have been oriented onto the ICRF (formerly, the "IERS reference frame") since 1995. The orientation is now accurate to about 1 mas, accomplished by the inclusion of VLBI observations of a number of spacecraft in orbit around Venus and Mars. Since the ICRF is assumed to be inertially founded, the notion of a dynamical reference frame is no longer relevant.

The ephemerides also provide accurate coordinates of the earth about the sun, from which the location of a "mean ecliptic" may be determined for use with other studies, such as precession, etc. The major uncertainty in the ephemerides of earth and Mars comes from the perturbations of many asteroids whose masses are not well-known.

1742 - ICRF SOLUTION BY GEOSCIENCE AUSTRALIA IVS ANALYSIS CENTER

Titov Oleg - Geoscience Australia

The Geoscience Australia IVS Analysis Center is working for improvement and densificaton of the ICRF in the Southern Hemisphere. The catalogue of 645 radiosource coordinates that estimated from 22-year set of VLBI data (1980-2002) in one homogeneous solution (ICRF, ITRF and EOP) is presented. Statistical analysis of individual position differences from catalogues by independent research groups shows a good agreement between solutions. Long term motions for selected radiosources are also analysed. The effect of the motions on the other parameters (ITRF, EOP) is discussed.