Annual for high resolution SAR Remote sensing

Synergy Experiment and application demonstration

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Abstract: This presented the annual progress of the 863 project in 2013, in the context of construction of a Airbor Ne polarimetric interferometric SAR (POLLNSAR) system, comprehensive campaign of high-resolution SAR and development of de Monstration application software of high-resolution SAR, and etc. In the aspect of airborne Pollnsar system Construction, we have accomplished the construction of the X-band Pollnsar R, the SAR system ' s laboratory Joint Debug Test, and the aircraft flight calibration experiments. We have implemented the comprehensive experiment for high-resolution SAR in the test site of Ruergai County of Sichuan Pr Ovine and successively in the test site of Genhe of Daxing ' anling in Inner Mongolia. Totally about 28.5 TB of airborne X-band double antenna InSAR and P-band polarimetric SAR data, covering 8 619.8 km2 campaign area, is acquired. The preprocessing for all the SAR data has been finished. Moreover, the multi-temporal Radarsat-2 quad-polarization SAR and Landsat-8 multi-spectral satellite data covering the Gen He experi-mental area is obtained. At the meanwhile, the comprehensive and real-time or nearly real-time ground investigations were organized, and from 8 ins The Titutes and universities under the framework of the project, the teams person-times were. The ground truth data, such as the Forest Leaf area index (LAI), farmland vegetation parameters, soil and meteorological P Arameters and land cover types were measured. For the development of high-resolution SAR application software, the prototype of software modules has been completed, Inc. Luding topographic mapping, land use and vegetation type classification, forest vegetation vertical structure parameter es Timation, and etc. Improvements for this modules and their integration to the whole software system are ongoing using the uniform developmen T language and standard under the frame
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of the project5 s system software in order to develop one high resolution SAR application software with USER-FR lendly interface.
As We expected, the achievements of this year would support the application and demonstration of high resolution SA R, which is our future work in the next year 2014.

Keywords: high resolution SAR; Airborne SAR Campaign; Polinsar System Construction; SAR application Software; SAR

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Outer Antarctic solar extrasolar planets search and Kepler Planet TTV Research
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Summary : Antarctic AST3 Telescope Research will obtain high-precision photometric data for the long time series of stars in the area near South Pole . from these data ,We can detect Planet Occultation signals to search for extrasolar planets , can also vary by interval between masks ( TTV) to confirm the multiple planetary system . 2013year , we've dealt with CSTAR2008 years 1 band data , excluding data class errors of several types , to increase the precision to 1% The following , to effectively discover Jupiter's size exoplanets . through search , We found it in the sky area near South Pole ten extrasolar Planet candidates . at the same time , We use a longer timelineKepler photometric data , to Kepler Multiple planet system Planet candidate Analysis , two times to recognize the System Planet . to Kepler Planet TTV Research Experience , apply to Antarctica AST3 entry for sequential photometric data on subsequent access .

keyword : The time change of the planet Occultation occultation in the Antarctic Solar System cstar AST3 Kepler

  Exoplanet Survey at Antarctic and the TTV
  Kepler Exoplanet Candidates
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Abstract : The AST3 project would monitor a large area around the south celestial pole and obtain long term dat A of those stars within the area. From these data, we could detect the transiting signals of exoplanets. Studying the transit time variations also allow us to confirm those multiple-planet system. We reprocessed the 2008 data of Cstar by eliminating some systematic. The photometric accuracy was improved to below 1% which allows us to detect Ju Piter size exoplanet effectively. From the improved data, we found exoplanet candidates. Second, to study the TTV effects, we adopted the light-curves from the Kepler project. By remodeling the interaction between two planets trapped in mean motion resonances (mmrs), we calculated the correlations Between the interacting planets in each system and confirmed that they real are. New exoplanets were confirmed by us during 2013. These experience would be adopted on the data from further AST3 observations.

Key Words : Antarctic ; exoplanet ; Transit ; Transit time Variation ; Cstar ; AST3 ; Kepler

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