

INTERCALIBRATION OF INFRARED WINDOW CHANNELS OF POLAR-ORBITING FY-3A INSTRUMENT WITH AIRS/AQUA DATA

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ABSTRACT:

This work addressed the intercalibration of the infrared window channels of InfraRed Atmospheric Sounder (IRAS), Visible and InfraRed Radiometer (VIRR) and MEdium Resolution Spectral Imager (MERSI) aboard the Chinese second generation polar-orbiting meteorological satellite FengYun 3A (FY-3A) with high spectral resolution data acquired by the Atmospheric InfraRed Sounder (AIRS) aboard Aqua. A North Pole study area was selected according to the satellites' viewing geometry. The FY-3A L1 data and AIRS/Aqua 1B Infrared geolocated and calibrated radiances (AIRIBRAD) in July of both 2008 and 2009 were used in this work. A sub-pixel registration method was developed and applied to the satellite images to improve the intercalibration accuracy. The co-located measurement pairs were picked out with absolute Viewing Zenith Angle differences less than 5° ($|\#VZA| < 5^\circ$), absolute Viewing Azimuth Angle differences less than 90° ($|\#VAA| < 90^\circ$) and absolute time differences less than 15 min ($|T| < 15'$). The results indicate that the convolved AIRS/Aqua measurements were highly linearly related to the FY-3A measurements and calibration discrepancies exist between FY-3A and AIRS measurements.

TOPIC: Multi-spectral and hyperspectral remote sensing

ALTERNATIVE TOPIC: Multi-spectral and hyperspectral remote sensing