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NOAA/NESDIS Operational and Research Ocean Remote Sensing Applications in Asia, Oceania, and the Antarctic Region

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The U.S. Department of Commerce (DOC) National Oceanic and Atmospheric Administration (NOAA) National Environmental Satellite, Data, and Information Service (NESDIS) conducts operational and research ocean remote sensing activities globally. This paper highlights some observations and products available over Asia, Oceania, and the Antarctic region. Data from the Advanced Very High Resolution Radiometer (AVHRR) aboard the NOAA-series satellites are routinely used to produce global sea surface temperature (SST) as well as SST-derived products used to monitored regional coral reef thermal stress. AVHRR is also used to produce operational aerosol optical depth retrievals. Dust aerosol from storms over China, for example, can significantly affect the remote sensing of water surface properties in the region. Active microwave sensors such as the SeaWinds scatterometer aboard QuikSCAT and the RADARSAT-1 synthetic aperture radar (SAR) are used to produce high-resolution sea surface wind vectors and maps. Sea ice conditions are detected using 1) visible observations from AVHRR, the Defense Meteorological Satellite Program (DMSP) Operational Linescan System (OLS), and Moderate-resolution Imaging Spectroradiometer (MODIS) aboard the Aqua and Terra satellites, 2) infrared observations (AVHRR), or 3) active (QuikSCAT; SAR) and passive (DMSP Special Sensor Microwave Imager - SSM/I) microwave observations. In particular, the National Ice Center (NIC), a multi-agency organization that includes the Naval Ice Center, NOAA/NESDIS, and the U.S. Coast Guard, routinely does operational sea ice monitoring and produces analyses for the Arctic Ocean, Bering Sea, Sea of Okhotsk, Sea of Japan, Yellow Sea, and the Antarctic region. Detection and monitoring of icebergs is also done by NIC in support of operations in Antarctica.

Keywords: SST; coral reef; surface winds; aerosol; sea ice; icebergs.