Characterization of troposphere and land surface properties from CMIS

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The NPOESS Conically-scanning Microwave Imager/Sounder (CMIS) will provide polarimetric measurements in the range 6-183 GHz. CMIS will combine capabilities of AMSR, WindSat and SSMIS, in that it will enable the retrieval of soil moisture, ocean surface wind direction, and mesospheric temperature, in addition to the more traditional microwave land/surface environmental variables. The combination of sounding and imaging channels on the CMIS instrument will be exploited to enhance both surface and lower atmosphere characterization and maintain physical consistency between the atmosphere and surface variables. In particular, the presence of vertically and horizontally polarized channels near 23 GHz and in window regions, together with the presence of sounding channels, will open the door to significant advances in assimilation or retrieval of lower atmosphere data over land. In addition, there are plans to quantify the impact of incorporating the information provided by VIIRS and CrIS, on the same platform, on the system performance over land and on the EDR quality control.
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