

GOES-R era Precipitation Products – Plans, Potential Enhancements and the Future NESDIS Enterprise Precipitation Vision

Ralph Ferraro, NOAA/NESDIS, College Park, MD

Contributions by MANY others including:

Bob Kuligowski (NESDIS), Pingping Xie (NWS), Nai-Yu Wang (IMSG, Inc.), Robert Adler (Univ. Maryland), Patrick Meyers (Univ. of Maryland), Scott Rudlosky (NESDIS), Huan Meng (NESDIS)

With the advanced visible and infrared (IR) capabilities anticipated from the GOES-R Advanced Baseline Imager (ABI), as well as improved temporal and spatial resolution, an improved rainfall product is anticipated to support primarily flash flood applications. This is particularly useful in regions where ground radar and rain gauges are sparse or have limited capability (i.e., primarily the western third of the U.S and in the OCONUS domain). The technique that will be utilized is known as SCaMPR (Self-Calibrating Multivariate Precipitation Retrieval), developed by B. Kuligowski of NESDIS. An overview of SCaMPR will be presented.

Since SCaMPR relies on calibration between the GOES based measurements and co-incident passive microwave (MW) precipitation estimates, the presentation will also summarize several new, emerging satellite precipitation products from recently launched satellite missions and their related MW sensors – S-NPP/ATMS, GCOM/AMS2, M-T/SAPHIR and GPM/GMI.

Looking towards the future, there have been exciting new developments supported by the GOES-R and JPSS risk reduction programs – synergy between lightning and IR to improve convective cores and associated rainfall; MW derived snowfall rates; and advances in fused IR and MW products (and ground radar – the subject of the next talk today). The talk will conclude by illustrating these advances and presenting a vision for an improved, unified NESDIS precipitation enterprise that will deliver improved products to users and a more efficient manner.