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Comparison of TRMM Ground Validation Rain Rates with TRMM and Other Satellite Estimates

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This presentation will provide an inter-comparison of instantaneous rain rates observed by the two rain sensors aboard the TRMM satellite with ground validation data from Kwajalein Atoll and Melbourne, Florida. The satellite estimates include the TRMM microwave imager (TMI), Precipitation Radar (PR) and Combined (COM). Rain rate estimates from the PR, COM and GV data were spatio-temporally matched and averaged with each TMI footprint ($\sim 150 \text{ km}^2$), and sub-setted by terrain type.

Our results will show that all of the respective rain rate estimates agree well, with some exceptions, especially during heavy rain events in which one or more of the algorithms failed to properly retrieve such extreme events. It also appears that there is a preferred mode of precipitation for TMI rain rates at or near 2 mm hr^{-1} over the ocean. This mode was noted over ocean areas of Kwajalein and Melbourne as well as over the tropical-global ocean.