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# Fundamental Data Records for Precipitation

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The estimation of global precipitation relies heavily upon observations made by a range of passive microwave sensors. Over the last 40 years there have been a multitude of such sensors, with different resolutions, observation frequencies and sampling times/periods. Consequently, a concerted effort has been made to produce a consistent observational record of passive microwave brightness temperatures resulting in the generation of Fundamental Climate Data Records (FCDRs). This presentation provides an outline of a project to generate precipitation data records based upon these records.

A key goal of the project is, as for brightness temperatures, that the precipitation products provide a consistent record over the long-term. A number of precipitation retrieval schemes are currently available that provide long-term precipitation products. However, many of these schemes reply upon external information, from gauges or models, to constrain or calibrate the satellite-derived precipitation estimate, influencing the final precipitation product. While beneficial to the end-user, the use of these external data may also mask changes in the satellite record. To address this, a number of 'simple' precipitation retrieval techniques are being evaluated over the long-term record to identify and examine discontinuities in the precipitation data record: simple techniques may not provide the best precipitation estimate, but they are better at identifying any changes in the observational record. Ultimately the use of more 'simple' techniques allows not only changes in the input data sets to be checked, but also provides a forensic tool to be able to better understand changes in more complex retrievals schemes.

This presentation will provide an outline of the project, its methodologies and anticipated results. Initial results will be presented, looking at the impact of temporal sampling upon precipitation estimates, from the daily through to the long-term scales. In particular, the availability of observations from different satellites, combined with variations in overpass times impacts precipitation product, particularly in regions of strong diurnal variations.