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Passive microwaves for soil moisture monitoring

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Since SMMR launched in 1978) to SMOS (launched in 2009) several missions have attempted describing the soil moisture, an important component of the water cycle. This could be a unique data set to see climatic trends, if coupled with other means as all the sensors (namely SMMR, SSM/I, ERS SCAT, Envisat ASCAT, AMSR, and now SMOS) have different times of over pass, different frequencies and possibluy even different measurement approaches. The rationale here is to inter-calibrate all the sensors available and try to operate a seamless transition correcting all the artifacts. The paper presents our two prong approach. On one hand we intercalibrate using reference targets the SMMR - SSM/I - AMSR series, deriving an empirical adjustment law for time of over pass and slight frequency differences, while, on the other hand we inter-compare over well monitored sites the behaviour of all available sensors and possibly algorithms. Finally, in the framework of the preparation of the SMOS mission we analyse over a reference site different ways to spatialise point information of a smos like pixel. During the oral presentation we will give the results gained through this approach and the problems encountered as well as potential ways to solve them. The results are intercompared with other similar approaches and long term soil moisture evolution shown on different areas.