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In early November 2012, the SMOS mission celebrated 3 years in orbit. Since its launch, this mission has given many opportunities for breaking new grounds.

Shortly after launch, first global maps of soil moisture ever measured from space were produced. Since then, the achieved accuracy has continuously improved to match the requirements. The long term trends of surface moisture can now be closely linked to precipitation regime, and SMOS results have been successfully used in response to extreme events.

On the other hand, ocean salinity results have also improved dramatically. Here again, some amazing results regarding river plumes or fresh water pools related to precipitation have been obtained.

At last, new applications have been imagined in various fields such as of sea ice thickness, or hurricane winds. This presentation will give an extensive status of the mission, emphasizing the many lessons learned and demonstrating some outstanding results. Some perspectives on the mission and future missions will also be given.