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The ESA Tiger Innovator project SHARE - Soil moisture for hydrometeorologic applications in the SADC region

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Soil moisture is a key element in the global hydrologic, energy and carbon cycle. Knowledge about the location specific sensitivity of radar backscatter can be used for operational determination of relative soil moisture over large regions. This approach has been developed for C-Band scatterometer and transferred to C-Band ScanSAR within the ESA Tiger Innovator project SHARE (ENVISAT ASAR WS/GM; www.ipf.tuwien.ac.at/radar/share). SHARE aims at enabling an operational soil moisture monitoring service for the region of the Southern African Development Community (SADC). With this service SHARE addresses one of today's most severe obstacles in water resource management which is the lack of availability of reliable soil moisture information on a dynamic basis at a frequency of a week and less. The soil moisture information system is based on the newest radar satellite technology. The service uses data delivered by ENVISAT's ASAR sensor operated in global mode and the METOP scatterometer sensors. The synergistic use of both systems allows frequent, high resolution monitoring of regional soil moisture dynamics. The SADC 1km soil moisture database is updated fortnightly. A similar service is currently under preparation for entire Australia as part of the SHARE extension supported by the European Space Agency.