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Definition of SMOS Level 3 Land Products for the Villafranca del Castillo Data Processing Centre (CP34)

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The ESA SMOS (*Soil Moisture and Ocean Salinity*) Mission is planned to be launched in July 2009. The satellite will measure soil moisture over the continents and surface salinity of the oceans at resolutions that are sufficient for climatological-type studies. This paper describes the procedure to be used at the Spanish SMOS Level 3 and 4 *Data Processing Centre* (CP34) to generate Soil Moisture and other Land Surface Product maps from SMOS Level 2 data. This procedure can be used to map Soil Moisture, Vegetation Water Content and Soil Dielectric Constant data into different pre-defined spatial grids with fixed temporal frequency. The L3 standard Land Surface Products to be generated at CP34 are:

1. Soil Moisture products:
   (a) maximum spatial resolution with no spatial averaging, temporal averaging of 3 days, daily generation
   (b) maximum spatial resolution with no spatial averaging, temporal averaging of 10 days, generation frequency of once every 10 days. b': maximum spatial resolution with no spatial averaging, temporal averaging of monthly decades (1^{st} to 10^{th} of the month, 11^{th} to 20^{th} of the month, 21^{st} to last day of the month), generation frequency of once every decade
   (c) monthly average, temporal averaging from L3 decade averages, monthly generation
   (d) Seasonal average, temporal averaging from L3 monthly averages, seasonally generation
   (e) yearly average, temporal averaging from L3 monthly averages, yearly generation
2. Vegetation Water Content products:
   (a) maximum spatial resolution with no spatial averaging, temporal averaging of 10 days, generation frequency of once every 10 days. a': maximum spatial resolution with no spatial averaging, temporal averaging of monthly decades (1^{st} to 10^{th} of the month, 11^{th} to 20^{th} of the month, 21^{st} to last day of the month) using simple averaging method over the L2 products in ISEA grid, generation frequency of once every decade
   (b) monthly average, temporal averaging from L3 decade averages, monthly generation
   (c) seasonal average, temporal averaging from L3 monthly averages, seasonally generation
   (d) yearly average, temporal averaging from L3 monthly averages, yearly generation
3. Dielectric Constant products: (the dielectric constant products are delivered together with soil moisture products, with the same averaging periods and generation frequency):
   (a) maximum spatial resolution with no spatial averaging, temporal averaging of 3 days, daily generation
   (b) maximum spatial resolution with no spatial averaging, temporal averaging of 10 days, generation frequency of once every 10 days. b': maximum spatial resolution with no spatial averaging, temporal averaging of monthly decades (1^{st} to 10^{th} of the month, 11^{th} to 20^{th} of the month, 21^{st} to last day of the month), generation frequency of once every decade

(c) monthly average, temporal averaging from L3 decade averages, monthly generation

(d) seasonal average, temporal averaging from L3 monthly averages, seasonally generation

(e) yearly average, temporal averaging from L3 monthly averages, yearly generation.