Operational land surface obs

Stephen English (ECMWF)

Matthias Drusch and Susanne Mecklenburg (ESA)

WMO Implementation Plan for the Evolution of Global Observing Systems (EGOS-IP) :

"…there are several new or emerging instruments and technologies which should be tested and possibly implemented operationally before 2025. Examples of these on LEO satellites are lidars (for wind, clouds and aerosols) and **low-frequency microwave radiometers (for soil moisture and ocean salinity**)."

- L-band available since 2009 and demonstrated.
- As there are **no plans for an operational mission** there is little take up by NWP centres.
- Issue identified and discussed at ISSI forum in 2014.

There is a similar issue for observations of snow.

Operational satellite agencies have yet to be mandated to procure improved soil moisture and snow observations?

Gap in plans versus vision….

Parameter	Observing system	Prospect for Operational by 2025
Snow parameters	• Active MW • Passive MW • Vis/NIR imagers	Poorly covered Covered Well covered
Soil moisture	• L-band radiometry • C and Ku band scatterometry	ZERO Covered
Land surface temperature	• IR imager / sounder • MW imager	Well covered Poorly covered

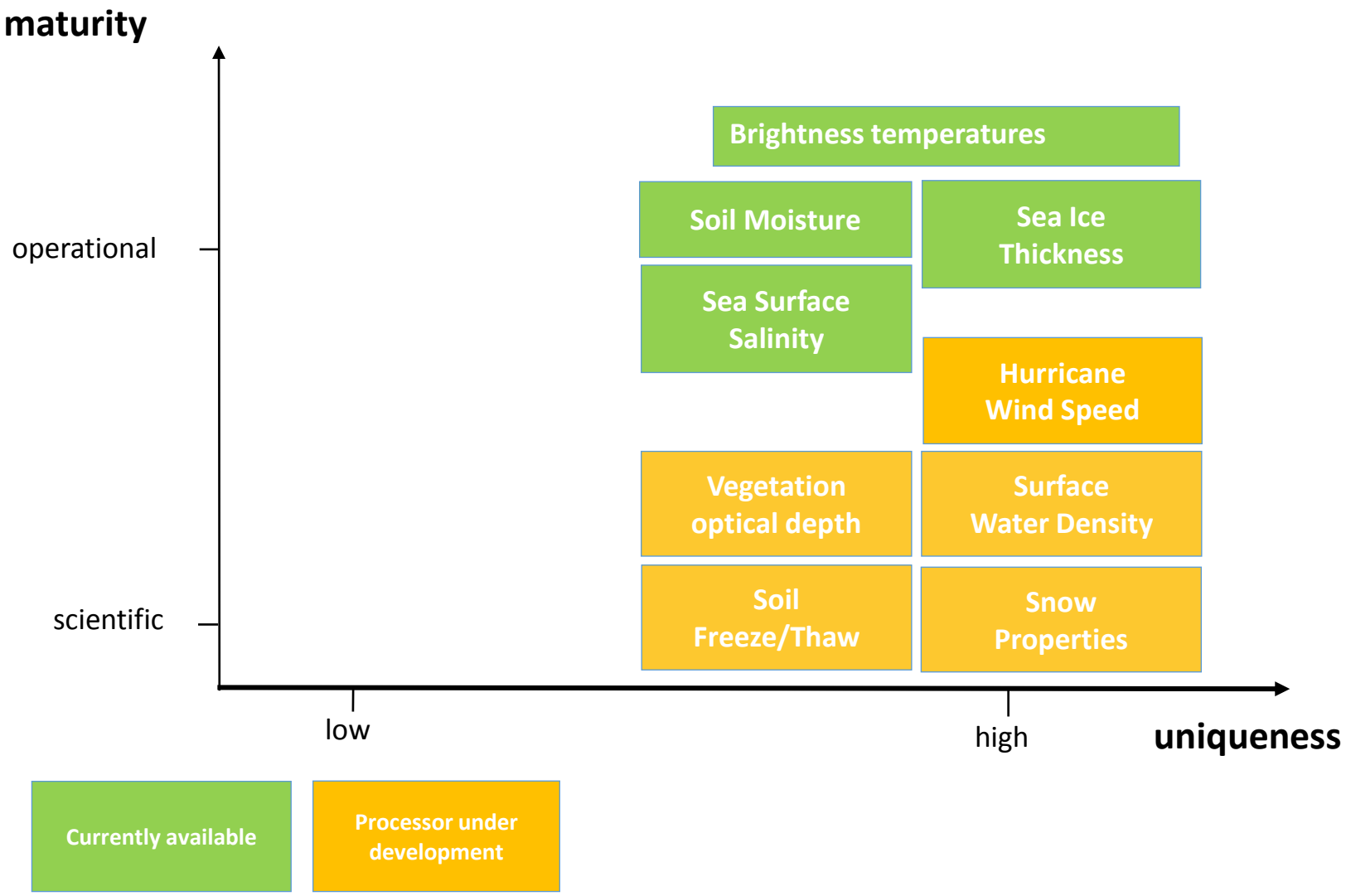
There is a high likelihood that in 2025 the GOS will not meet stated requirements for soil moisture and snow, and may be significantly worse than it is now in 2015.

Is it lack of communication, coordination, level of interest in existing missions?

- ITWG speaks for temperature and humidity
- IPWG speaks for precipitation
- IWWG speaks for winds
- IROWG speaks for RO
- ICWG speaks for clouds

→ And communicate clear messages to CGMS. Does this make a difference to how agencies view the priorities of NWP centres?

- Who speaks for land surface to WMO? ISMN? GEWEX?
- How do agencies know the highest priority observations for land surface?
- Is there a need for more operational land surface satellite observations?


maturity
operational
scientific
Brightness temperatures
Soil Moisture
Sea Ice Thickness
Sea Surface Salinity
Hurricane Wind Speed
Vegetation optical depth
Surface Water Density
Soil Freeze/Thaw
Snow Properties
low
high
uniqueness
Currently available
Processor under development