

# EO services contributing to SDGs

## Drought monitoring in Argentina



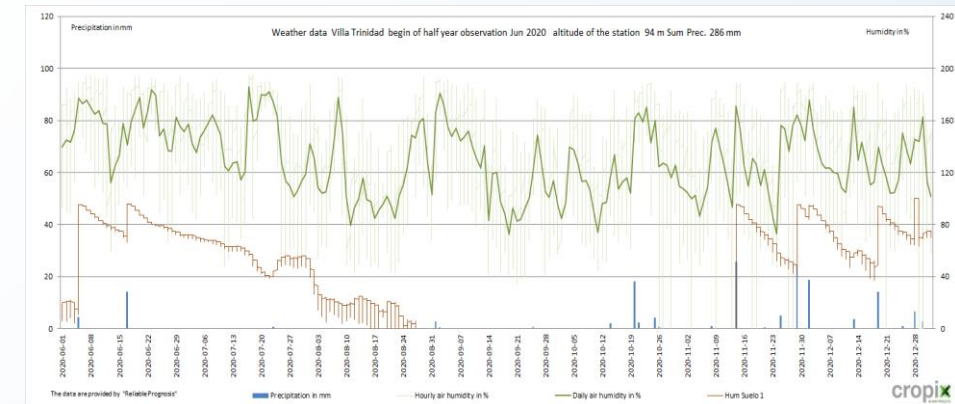
- User: Governmental institutions or crop Insurance
- Challenge/Needs: Detect the deviation in plant humidity from baseline.
- Initiative: Mitigation and compensation for drought events.
- Results: Low basic risk, due to regular and constant measurement.
- Service Provider: cropix based on Sentinel-1 SAR data.

Target 2.4: By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality.  
Target 6.4: By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity.  
Indicator 6.4.2.: Water stress



### SAR Water Index (SWI) derived from Sentinel-1 SAR data

- Sentinel-1 acquires data on regular basis with a repetition of 12 days (20x20 m).
- Independent from atmospheric disturbances and daylight.
- Constant observation angle, energy and geometry. Ideal for time-series monitoring.
- SWI indicates the humidity and drought stress of cropland.
- SWI was calibrated against optical NDWI (Gao) and shows high correlation.
- Data of the past 7 years is available to derive a baseline.



For an area in Santa Fe province in Argentina we used a 20x20 km grid to calculate the mean SWI over cropland. The results we compared over a period of four succeeding years in the growing period from July – December. The weather station in Villa Trinidad shows a deviation in precipitation from **481 mm** in 2018 to **286 mm** within this growing period in 2020.