

# Operational Drought Monitoring in Slovenia using EUMETSAT's LSA SAF Vegetation Products

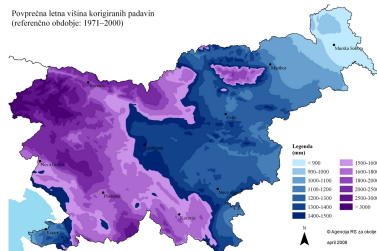
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# Slovenia's Climate and Drought Severity

- Slovenia's climate is favourable in terms of precipitation amounts in all seasons



Map indicating yearly rainfall accumulations averaged over 1971–2000 in Slovenia (EARS, M. Dolinar).

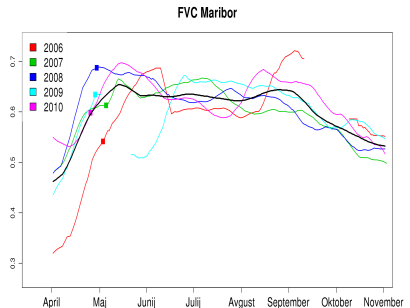
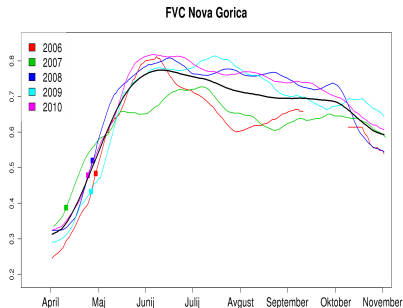
- In the last decade there have been several occurrences of more severe droughts
- Particularly SW and NE parts of Slovenia are prone to drought impacts.
- These drought occurrences triggered a careful monitoring of drought evolution, its severity and its spatial extent.

# EUMETSAT's LSA SAF vegetation products

- LSA SAF's LAI and FVC are important indicators of the state and evolution of the vegetation cover
- These products offer an opportunity to monitor drought conditions over Slovenia.
- The parameters are compared against drought indices such as Standardized Precipitation Index (SPI) and maps of drought related economic damage in agriculture.
- The products are currently being employed in an operational manner as one of the tools to monitor drought conditions over Slovenia and assess drought related economic damage at the Environmental Agency of the Republic of Slovenia.

# FVC Evolution in 2006–2010

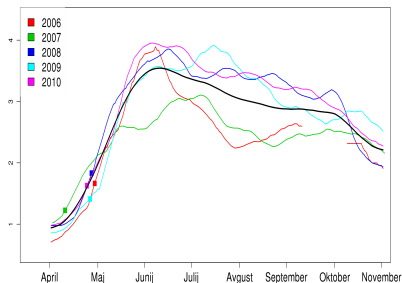
- FVC evolution in vegetative period (April–October) is monitored and compared with ground phenological data.
- Curve of mean yearly evolution is calculated in 2006–2010 period.
- Negative departures from the mean curve assist us to indicate drought conditions.



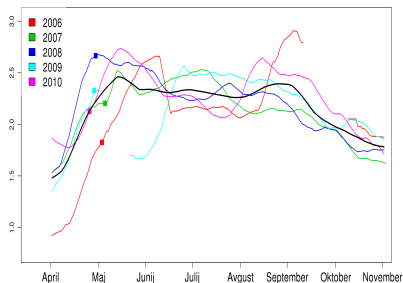
# LAI Evolution in 2006–2010

- LAI evolution in vegetative period (April–October) is monitored and compared with ground phenological data.
- Curve of mean yearly evolution is calculated in 2006–2010 period.
- Negative departures from the mean curve indicate drought conditions.

LAI Nova Gorica

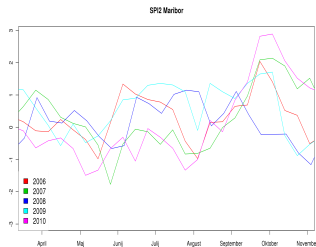
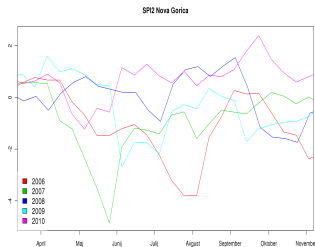


LAI Maribor



# SPI (Standardized Precipitation Index)

- A probability index that considers only precipitation.
- Based on the probability of recording a given amount of precipitation.
- Standardised probabilities
  - zero indicates the median precipitation amount
  - negative for drought
  - positive for wet conditions

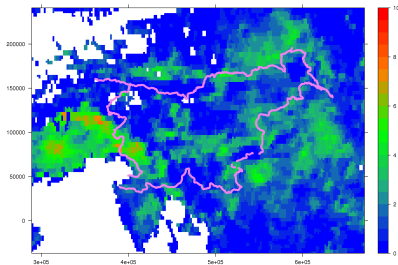


2-month SPI calculated for the Nova Gorica and Maribor locations in 2006-2010.

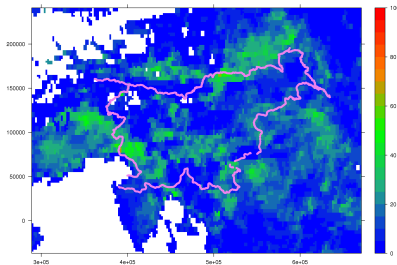
# LAI and FVC Accumulations

- Accumulations of negative anomalies from mean daily values calculated for June to September period.
- There is a good match between LAI, FVC accumulations and map of drought related economic damage in agriculture

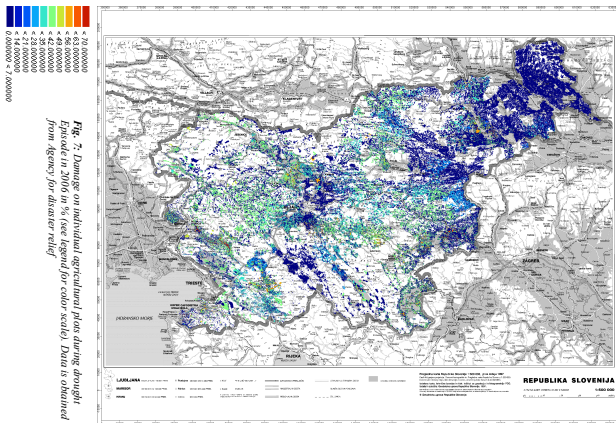
FVC Accumulations from 2006-06-01 to 2006-09-30



LAI Accumulations from 2006-06-01 to 2006-09-30



## Drought Related Economic Damage



**Fig. 7:** Damage on individual agricultural plots during drought Episode in 2006 in % (see legend for color scale). Data is obtained from Agency for disaster relief

Map indicating drought related economic damage in agriculture in 2006 across Slovenia (EARS).

# Acknowledgements

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