DAILY ASSESSMENT OF DROUGHT AND RELATED VEGETATION SUSCEPTIBILITY TO FIRES BY USING LAND SURFACE TEMPERATURE PARAMETER

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Focus

Key short-term regional aspects of drought–fire relations, using land surface temperature as a measure of dry surface state on a daily basis.

The Aim

(i)To evaluate the **relation of land surface state parameters to fire activity** on a regional scale using

-ground observations of actual fire occurrence, with test period 2016 and 2017 and

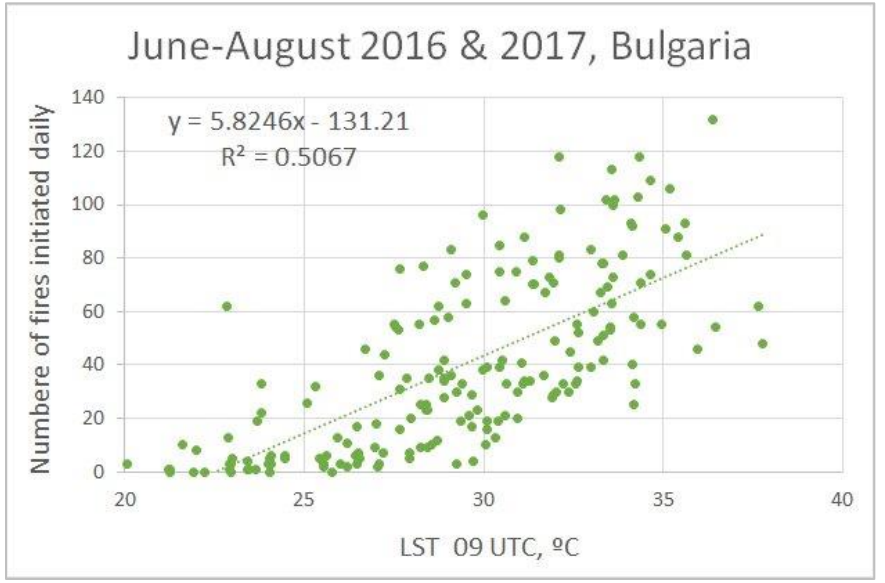
-LSASAF FRP-Pixel product detections of fires/hot spots in 2024

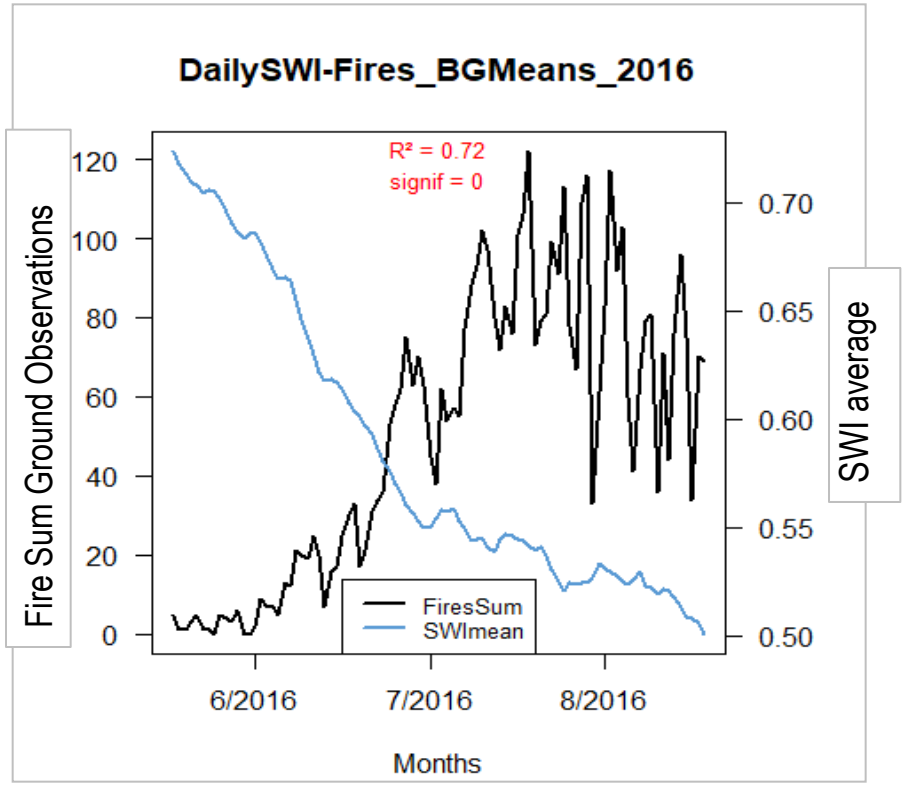
(ii) To evaluate these relations by statistical analyses with the

(iii) Option to forecast fire activity depending on LST variability.

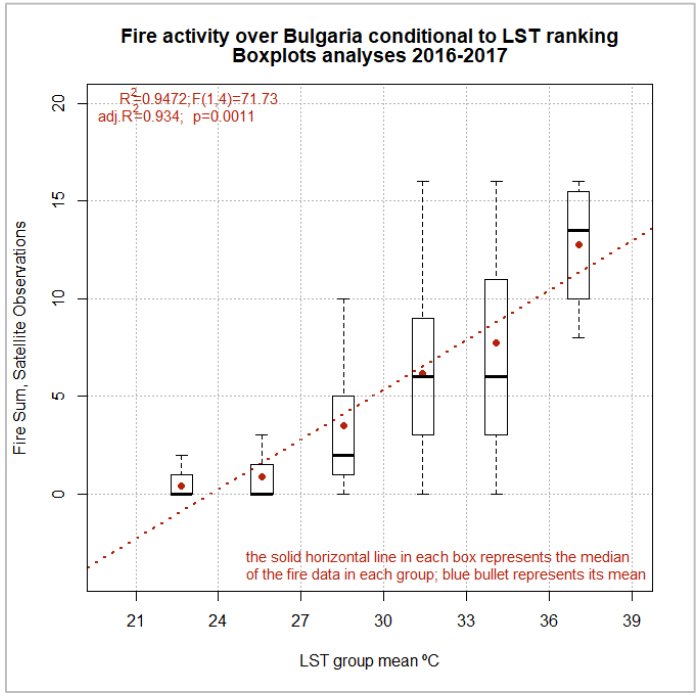
Statistical evaluation of the relation between land surface state parameters LST/ SKT/ SWI and Fire activity over Bulgaria on a daily basis

Close relationship between daily averaged values over Bulgaria of LSASAF LST at 09 UTC and the number of actual vegetation fires in 2016 and 2017.

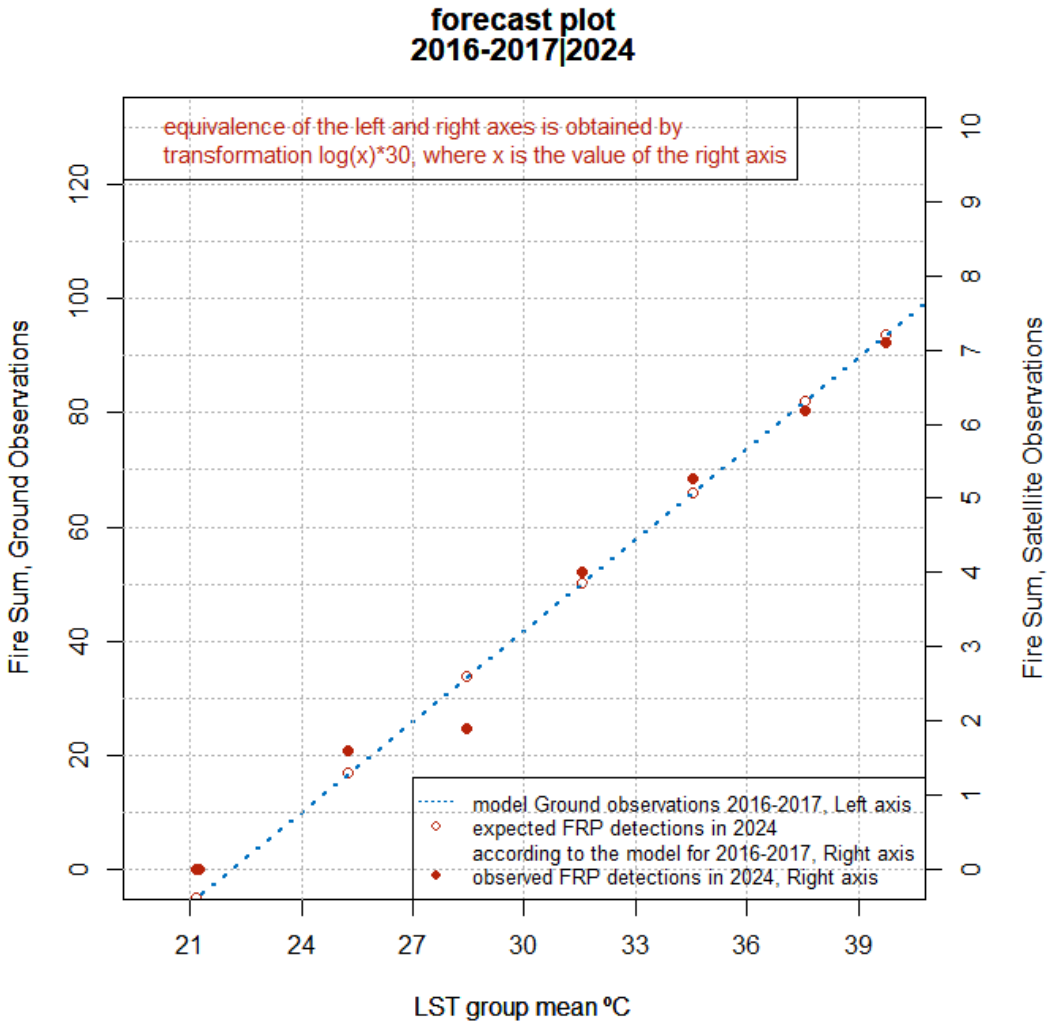




- ✓ Fire activity & HSAF SWI
- ✓ Fires accounted by ground observations & LSASAF FRP product
- ✓ Regression models of fire sum conditional to LST ranking, dividing the range of set of LST data during the fire season (June –August) into equal subgroups of 3 ºC.
- ✓ Applying a model to forecast daily fire sum over Bulgaria (first results).



Modeling of Fire Activity conditional to LST ranking over Bulgaria



A suitable regression model, according to the results from ground fire observations (2016-2017) is applied to forecast the fire sum in 2024 depending on the average regional LST on a daily basis.

The first results show satisfactory agreement with the fire activity observed by the LSASAF FRP.

Forecast model verification:
A logarithmic transformation is applied on the regression model derived from ground observations 2016-2017 for forecast verification using satellite FRP observations in 2024.