THE PROJECT

2 Follow-up of the first year of SERV_FORFIRE activities

3 Participation of SERV_FORFIRE team in ERA4CS Summer School

4 Training activities to end users

5 Website of the project
SERV_FORFIRE started on 15 September with the aim of creating an international collaborative community, expert in remote sensing soil and vegetation, risk management and mitigation, and the challenge of providing climate information along with decision makers and planning authorities for the fire and post fire risk prevention. This objective will be achieved by (i) conducting quality and innovativeness cutting-edge research and develop services and tools useful for fire and post fire seasonal estimation risks (ii) leading to an improved fire risk management and to a more efficient and safer control of forest fires (iii) developing knowledge and tools that will help to reduce the negative impacts of fire while enhancing its beneficial effects for society and the environment, (iv) helping stakeholders, users and land managers to better understand and manage fire.

The project activities officially began at the kick-off meeting organized in Rome at the CNR headquarter on 9 and 10 October 2017. This meeting was the opportunity to introduce the project, its main objectives and the specific skills and expertise to share among all the partners.

The project is led by the Department of Earth system science and environmental technologies of the National Research Council of Italy (DTA-CNR), where dr. Rosa Lasaponara, has been playing the role of Lead Principal Investigator and coordinates a partnership composed by the Finnish Meteorological Institute (Finland), Bureau de Recherches Géologiques et Minières (France), National Center for Scientific Research "Demokritos" (Greece), the Global Change Research Institute of the Czech Academy of Sciences (Czech Republic) and the Royal Netherlands Meteorological Institute (The Netherland). The core activities of SERV_FORFIRE is represented by the seasonal fire occurrence model development, the Post fire risk assessment through the model development and setup at different temporal and spatial scales, and by the implementation of the joint activities among partners. Monitoring and mitigation strategies will be defined at both European and local scales also investigating significant pilot areas selected in several geographic areas and with different environmental features, ranging from Southern to Northern Europe. The test sites were selected in South and North geographical region:

(A) Czech Republic, (B) Attika and Cyprus, (C) Basilicata Region (South of Italy)
2. Follow-up of the first year of SERV_FORFIRE activities

CASE STUDY: the 2017 Ophelia storm case

by Finnish Meteorological Institute (Finland)

Arguably the most-significant fire event from the aviation standpoint was the episode in October 2017 when the fire smoke from Portugal and dust from Sahara were picked by the jet stream from the Ophelia storm in Atlantic Ocean. The pollutants were transported all the way up to Finland causing major problems for aircrafts around English Channel where the aircrafts got a strong smoke smell in the cabin at the altitude of about 3 km.

The fires in Portugal were active already in September 2017 but their peak in mid-October coincided with a strong wind from the south during 14-17.10.2017. As a result, a plume of fire-induced PM with concentrations reaching up to 100 µg m⁻³ or even more travelled over northern part of Spain, France, UK, and then continued over the Netherlands and Belgium towards Baltic Sea and further reaching up to central Russia.

This episode is being analysed by the EUNADICS-AV project on aviation safety and by the COST In Dust community. The contribution of FMI within the SERV_FORFIRE is the accurate fire emission combining the MODIS and SEVIRI fire observations with the IS4FIRES analytic and newly developed predictive capacity. Below pictures illustrate the challenge: due to substantial cloud obscuration and sensitivity limitations of SEVIRI, both MODIS and SEVIRI fire inventories are incomplete and differ from each other. Our team aims at unified inventory for this case.

Sum of daily emission rates 4-23.10.2017,
MODIS, [kg PM sec⁻¹]

Sum of daily emission rates 4-23.10.2017,
SEVIRI, [kg PM sec⁻¹]
Forecast maps of Severity Rating of 2018 Greek fire season  
by National Center for Scientific Research "Demokritos" (Greece)

At the beginning of 2018 Greek fire season (1st May-15 October) NCSRD calculated daily maps of FWI system parameters, using high resolution seasonal forecasted meteorological data. Monthly and 15th-days forecast maps were created for Greece, for Severity Rating and Drought Code parameters. At the end of the summer, the resulting maps were evaluated using the Fire danger maps which were provided daily from the Greek Civil Protection Agency for the whole fire season. Appropriate classification of the value maps yield a set of forecast maps for the evaluation of Meteorological Forest Fire Danger level for the respective time level and can be proven a very useful tool for the effective exploitation of fire prevention means and personnel. The 15 -days forecast maps of Severity Rating for July and August are presented in the following picture, as an example.
ERA4CS SUMMER SCHOOL (ERA4CS) Climate Services from the users' perspective was held from 10-14 of September 2018 in Pisa, Italy and has been focused on multidisciplinary, up to date view of the lastest observations, models, projections, adaptation strategies, and services to mitigate climate change impacts with research and education. Common language on Climate Services for the projects, teach basis of Climate Services; technical and "philosophical" school.

CNR-DTA, as ERA4CS partner, has coordinated and co-organized the Summer School with the contribution of BELSPO, AEMET, CMCC and UREAD and thank to the active collaboration of CNR-IGG and CNR-IMAA personnel. In particular, Rosa Lasaponara, PI of SERV_FORFIRE, took part to the Steering Committee, and together with Antonello Provenzale (CNR-IGG), Massimiliano Pasqui (CNR-IBIMET), Carlo Calfapietra (CNR-IBAF), Folmer Krikken (KNMI) and Geert Jan van Oldenborgh (KNMI) as members of the Scientific Board of the Summer School.

Early career researchers from the granted, applied 30 and participated 21 participants.
4. Training activities to End Users

CNR-IMAA personnel has organized training activities for the usage of operative software for the fire management in the period 28 June – 11 October 2018. The training activities were addressed to the end users, specifically to the Dipartimento Protezione Civile Basilicata as stakeholder and associated partner of SERV_FORFIRE. About 25 people, coming both from the operational team of the « Dipartimento Civile of Basilicata Region » and the volunteers of the Forest Office of Basilicata Region took part to the training activities.
NCSRD team participated in the VIII International Conference on Forest Fire Research (Coimbra, Portugal 9 to 16 Nov, 2018) and presented the work described above, entitled “High Resolution Seasonal Forest Fire Danger mapping using WRF forecasts for Greece: A tool for forest fires prevention planning and fire risk management support”.