### Preliminary Workshop Program

#### 13th EARSeL Workshop on Forest Fires 2024

**Date:** Thursday, 19/Sept/2024

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
<th>Chair</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00am</td>
<td>Registration</td>
<td>Registration Desk</td>
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</tr>
<tr>
<td>5:00pm</td>
<td>Wish and Coffee</td>
<td>Coffee Hall</td>
<td></td>
</tr>
<tr>
<td>8:30am</td>
<td>Opening Ceremony (EARSeL representative, CNR IREA representative, Daniela Stroppiana local organizer)</td>
<td>Auditorium</td>
<td>Daniela Stroppiana</td>
</tr>
<tr>
<td>10:00am</td>
<td>Keynote 1</td>
<td>Auditorium</td>
<td>Kevin Tansey</td>
</tr>
<tr>
<td>11:00am</td>
<td><strong>Oral Session 1.1:</strong> Active fire and burned area products</td>
<td>Auditorium</td>
<td>Kevin Tansey</td>
</tr>
<tr>
<td>12:30pm</td>
<td><strong>Poster:</strong> Opening of the Poster Session</td>
<td>Auditorium</td>
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<th>Time</th>
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<tbody>
<tr>
<td>11:00am</td>
<td>Louis Giglio (University of Maryland, USA)</td>
<td>Auditorium</td>
<td>Kevin Tansey</td>
</tr>
<tr>
<td>11:00am</td>
<td>Global and Regional Burned Area Products of the ESA FireCCI Project: Current Products and Perspectives</td>
<td>Auditorium</td>
<td>Kevin Tansey</td>
</tr>
<tr>
<td>11:00am</td>
<td>Burned Area Mapping With Sentinel-2 Based on Reflectance Modelling and Deep Learning – Global Calibration and Preliminary Validation</td>
<td>Auditorium</td>
<td>Kevin Tansey</td>
</tr>
<tr>
<td>11:00am</td>
<td>Complementary Earth Observation Approaches to Advance Fire Emission Estimation</td>
<td>Auditorium</td>
<td>Kevin Tansey</td>
</tr>
<tr>
<td>11:00am</td>
<td>A Deep Learning Approach for Active Fire Detection Using Multi-Temporal Geostationary Satellite Data</td>
<td>Auditorium</td>
<td>Kevin Tansey</td>
</tr>
<tr>
<td>11:00am</td>
<td>Multi-resolution Monitoring of the 2023 Maui Wildfires, Implications and Recommendations for a Dedicated Fire Monitoring Satellite Constellation</td>
<td>Auditorium</td>
<td>Kevin Tansey</td>
</tr>
<tr>
<td>12:30pm</td>
<td>Poster exhibition</td>
<td>Sala Expo</td>
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<tr>
<td>1:00pm</td>
<td>Lunch break (Buffet lunch)</td>
<td>Sala B</td>
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</table>

**Date:** Thursday, 19/Sept/2024

**Registration Desk**

**Coffee Hall**

**Auditorium**

**Sala Expo**

**Sala B**
<table>
<thead>
<tr>
<th>Time</th>
<th>Session 1.2: Fuel type and characteristics mapping and modelling</th>
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<tbody>
<tr>
<td>2:00pm</td>
<td>Regional Wildland Fuel Type Mapping Using Sentinel-2 Timeseries And Spectral-Spatial Support Vector Machines</td>
</tr>
<tr>
<td>3:00pm</td>
<td>Analyzing Fuel Continuity Using Terrestrial Laser Scanner Data To Simulate Fire Behaviour</td>
</tr>
<tr>
<td>3:30pm</td>
<td>Assessing The Capabilities Of GEDI To Predict Forest Canopy Bulk Density</td>
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<tr>
<td>4:30pm</td>
<td>Towards Data-Driven Fire Management: From Comprehensive Fuel Characterization Data To Satellite Sensors Design</td>
</tr>
<tr>
<td>4:30pm</td>
<td>Integrating Phenology in Operational Early Warning for Forest Fires Using Sentinel-2 Data</td>
</tr>
<tr>
<td>5:00pm</td>
<td>Predicting Fire Severity In The French Mediterranean Area From Pre-Fire Time Series Of Remote Sensing And Meteorological Data</td>
</tr>
<tr>
<td>5:30pm</td>
<td>Mapping Burnt Areas and Fire Effects in Mediterranean Forests using Machine Learning with Optical and SAR Satellite Imagery</td>
</tr>
<tr>
<td>6:00pm</td>
<td>Characterizing Fuel Types, Loadings And Fire Behaviour In Central European Forests Using A Combination Of Proximate And Remote Sensing Techniques</td>
</tr>
<tr>
<td>7:00pm</td>
<td>EUMETSAT Efforts to Establish the European (NRT) Satellite Constellation: Observations of Wildfire Events with FCI’s New Imaging Capabilities, Validation of EUMETSAT’s FIR Active Fires Monitoring Product and Current Status of the Sentinel-3 NRT FRP Product</td>
</tr>
<tr>
<td>8:00pm</td>
<td>Non-climate Drivers Dominated Global Fire Activity Shifts in Recent Decades</td>
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<tr>
<td>9:00pm</td>
<td>Workshop dinner</td>
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</tbody>
</table>

**Date: Thursday, 19/Sept/2024**

**Oral Session 1.2:** Fuel type and characteristics mapping and modelling

**Session chair:** Rosa Lasaponara

**Location:** Auditorium

- Regional Wildland Fuel Type Mapping Using Sentinel-2 Timeseries And Spectral-Spatial Support Vector Machines
  - Michail Sismanis, Dimitris Stavrakoudis, Nikos Georgopoulos, Konstantinos Antoniadis, Ioannis Gitas

- Analyzing Fuel Continuity Using Terrestrial Laser Scanner Data To Simulate Fire Behaviour
  - Roberto Ferrara, Stefano Arrizza, Angelo Arca, Bachisio Arca, Pierpaolo Masia, Michele Salis, Grazia Pellizzaro

- Assessing The Capabilities Of GEDI To Predict Forest Canopy Bulk Density
  - Elena Aragoneses, Mariano Garcia, Hao Tang, Emilio Chuvieco

- Towards Data-Driven Fire Management: From Comprehensive Fuel Characterization Data To Satellite Sensors Design
  - Marta Yebra, Nicolas Younes, Gianluca Scortecini

- Integrating Phenology in Operational Early Warning for Forest Fires Using Sentinel-2 Data
  - Nicolò Perello, Andrea Trucchia, Mirko D’Andrea, Olga Parshina, Giuseppe Squicciarino, Luca Pulvirenti, Paolo Fiorucci

**Coffee Break**

**Oral Session 1.3:** Multi-source data and algorithms

**Location:** Auditorium

**Chair:** Elena Aragoneses

- Predicting Fire Severity In The French Mediterranean Area From Pre-Fire Time Series Of Remote Sensing And Meteorological Data
  - Victor Penot, Thomas Opitz, François Pimont, Olivier Merlin

- Mapping Burnt Areas and Fire Effects in Mediterranean Forests using Machine Learning with Optical and SAR Satellite Imagery
  - Giandomenico De Luca, João M.N. Silva, Giuseppe Modica

- Characterizing Fuel Types, Loadings And Fire Behaviour In Central European Forests Using A Combination Of Proximate And Remote Sensing Techniques
  - Pia Labenski, Michael Ewald, Sebastian Schmidlein, Fabian Ewald Fassnacht

- EUMETSAT Efforts to Establish the European (NRT) Satellite Constellation: Observations of Wildfire Events with FCI’s New Imaging Capabilities, Validation of EUMETSAT’s FIR Active Fires Monitoring Product and Current Status of the Sentinel-3 NRT FRP Product
  - Andrea Meraner, Julien Chimot, Johan Strandgren, Hans-Joachim Lutz, Alessandro Burini, Sauli Joro, Bojan Bojkov

- Non-climate Drivers Dominated Global Fire Activity Shifts in Recent Decades
  - Mark C. de Jong, Martin J. Wooster, Jonathan P.D. Mittaz

**Workshop dinner**
**Date: Friday, 20/Sept/2024**

<table>
<thead>
<tr>
<th>Time</th>
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<tbody>
<tr>
<td>8:00am</td>
<td>Registration</td>
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<tr>
<td>10:00am</td>
<td>Keynote 2: José Pereira (University of Lisbon, Portugal)</td>
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<tr>
<td>9:30am</td>
<td>Oral Session 2.1: Validation</td>
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<tr>
<td>9:00am</td>
<td>Poster exhibition</td>
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<tr>
<td>5:00pm</td>
<td>Coffee Break</td>
</tr>
<tr>
<td>11:00am</td>
<td>Oral Session 2.2: Regional applications</td>
</tr>
<tr>
<td>1:00pm</td>
<td>Lunch break (Buffet lunch)</td>
</tr>
<tr>
<td>1:00pm</td>
<td>Developing GOES 16 active fire assessment using polar satellites for Brazilian Wildfire Program</td>
</tr>
</tbody>
</table>

**A proposed evaluation Framework on Quality Assurance for EO-based fire products**
Bernardo Mota, Louis Giglio

**Validation Of A New Long-term Burned Area Product Compared With High-Resolution Burned Area Data Sets**
Jaime González-Delgado, Consuelo Gonzalo-Martín, Ángel García-Pedrero, Meryeme Boumahdi, Mario Lillo Saavedra

**Validation Of Regional And Global FireCCI Burned Area Products**
Daniela Stroppiana, Erika Solano Romero, Amin Khairoun, Bhogendra Mishra, M. Lucrecia Pettinari, Emilio Chuvieco

**Generating High-quality Reference Data from Terrestrial and Airborne Laser Scanning Data for Large-scale Mapping of Canopy and Surface Fuel Loads in Fire-prone Forest Ecosystems**
Nuria Sánchez López, Andrew T. Hudak, Jinyi Xia, Carlos Cabo, Diego Laiño, Benjamin C. Bright, Carlos A. Silva

**Intecomparison and Validation of the MODIS and VIIRS Global Burned Area Products**
Luigi Boschetti, David Roy, Louis Giglio, Vladyslav Oles

**Large Scale Assessment of Fire Impacts On Siberian Peatlands Carbon Through High-resolution Datasets**
Amin Khairoun, Philippe Clais, Thu-Hang Nguyen, Chunjing Giu, Filipe Aires, Sander Veraverbeke, Clement J. F. Delcourt, Emilio Chuvieco

**Rapid UK Wildfire Mapping with Planet data**
Akramd Abdulla, Kevin Tansey

**The Forest Fire Danger Prediction System of Mexico**
Daniel Jose Vega-Nieva, Jaime Briseño Reyes, Carlos Briones Herrera, Adrián Silva Cardoza, José Javier Corral Rivas, Pablito Marcelo López Serrano, Eduardo Cruz Castañeda, César Alberto Robles Gutiérrez, Yair Ricardes, Juan Miguel Campos Muñoz, Fabiola Esquerra, Alicia Verónica Salas, Ursula Berenice García Herrera, Maria Isabel Cruz López, Martín Cuahutle Cuahutle, Rainer Ressl, William Matthew Jolly, Robert E. Burgan, Ernesto Alvarado, Sean A. Parks, Lisa M. Holsinger

**Data-Driven Wildfire Spread Modelling Of European Wildfires**
Moritz Rösch, Michael Nolde, Torsten Riedlinger

**Developing GOES 16 active fire assessment using polar satellites for Brazilian Wildfire Program**
Paulo Victorino, Henrique Bernini, Fabiano Morelli, Paulo Cunha
**Date: Friday, 20/Sept/2024**

<table>
<thead>
<tr>
<th>Time</th>
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<tbody>
<tr>
<td>2:00pm</td>
<td>Oral Session 2.3: Operational systems and services</td>
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<td>Location: Auditorium</td>
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<td>Chair: Luigi Boschetti</td>
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<tr>
<td>3:30pm</td>
<td>Monitoring Wildfires from Copernicus Sentinels and Integration in the CAMS Service</td>
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<td>Dominika Leskow-Czyżewska, Julien Chimot, Andrea Meraner, Mark Parrington, Federico Fierli</td>
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<tr>
<td>2:00pm</td>
<td>Fire monitoring in Europe: the role of the European Forest Fire Information System (EFFIS)</td>
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<td>Duarte Oom, Jesús San Miguel Ayanz, Alfredo Branco, Pieralberto Maianti, Roberto Boca, Davide Ferrari, Tracy Durrant, Elena Roglia, Nicola Scionti, Maria Suarez-Moreno, Marco Brogia</td>
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<tr>
<td>3:30pm</td>
<td>Project SERAFIM – A Constellation of Nanosatellites for Rapid Active Fire Detection and Burnt Area Mapping</td>
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<td>Max Bereczky, Dmitry Rashkovetsky, Michael Nolde, Torsten Riedlinger, Michael Schmitt</td>
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<tr>
<td>4:00pm</td>
<td>A Glimpse into the Potential Impact of Meteosat Third Generation’s Flexible Combined Imager on Wildfire Detection from Satellites</td>
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<td>Valerio Pampanoni, Giovanni Laneve</td>
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<tr>
<td>4:00pm</td>
<td>The Use of RPAS Technologies as an Intelligence and Human Resource Tool During Active Wildfires</td>
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<td>Gabriela Ilimov, George Leblanc, Margaret Kalacska, Oliver Lucanus, Juan Pablo Arroyo-Mora, Janine Gorman, Melanie Wheatley, Colin McFayden</td>
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<tr>
<td>3:30pm</td>
<td>Coffee Break</td>
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<td></td>
<td>Location: Coffee Hall</td>
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<tr>
<td>4:00pm</td>
<td>Workshop closing: Panel discussion &amp; closing (Panel: Emilio Chuvieco, Jesus San Miguel, Ioannis Gitas, Louis Giglio, José Pereira)</td>
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<td>Location: Auditorium</td>
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<td>Chair: Daniela Stroppiana</td>
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**Consiglio Nazionale delle Ricerche**

**land**

**esa**

**remote sensing**
Poster Exhibition

Date: from Thursday, 19/Sept/2024 12.30pm to Friday, 20/Sept/2024 05.00pm
Location: Sala Expo

1. Deep Learning Approach for Spectral Unmixing of PRISMA Data in Wildfire Scenario
   Carbone, Andrea; Amici, Stefania; Spiller, Darío; Laneve, Giovanni

2. Fire Occurrence Drivers and Their Evolution Through Two Decades in Spain: Machine Learning and SHAP Spatial Variables Analyses
   Arrogante-Funes, Fátima; G. Bruzón, Adrián; Arrogante-Funes, Patricia; Pettinari, M. Lucrecia; Aguado, Inmaculada

3. Contribution Of High Resolution’s Satellite Images (Sentinel 2) To The Modeling Of Bush Fire Regimes In An Area With Fragile Ecology: Case Of The Sudanian Savannahs Of Northern Cameroon
   Bakaira, Markus; Sylvain, Aoudou Doua

4. Post-fire Dynamics of Habitat Heterogeneity in Mediterranean Landscapes Revealed by Time-series Analysis of Satellite Data
   Lechtman, May; Bar-Massada, Avi

5. Comparison of Fire Radiative Energy Estimates from the MODIS and VIIRS Active Fire Products
   Dodd, Jennifer; Boschetti, Luigi; Oles, Vladyslav

6. Comparative analysis of burned area mapping techniques using Sentinel-2 images of Google Earth Engine for Mexico
   Briones Herrera, Carlos; Vega Nieva, Daniel; Silva Cardoza, Adrián; Israel; Briseño Reyes, Jaime; López Serrano, Pablo; Marcelo; Corral Rivas, José Javier; Alvarez González, Juan Gabriel; Jolly, William Mathew; Silva, João M.

7. Automation of geomatic processes for the Forest Fire Danger Prediction System of Mexico
   Briseño Reyes, Jaime; Vega Nieva, Daniel; Briones Herrera, Carlos; Silva cardoza, Adrián

8. Enhancing Daily Wildfire Monitoring Through Multi-Task Diffusion Models
   Brune, Eric; Ban, Yifang

9. Assessing the Impact of Wildfires on Lake Water Quality Worldwide from Satellite Data
   Caroni, Rossana; Pinardi, Monica; Free, Gary; Stroppiana, Daniela; Parigi, Lorenzo; Greife, Anna Joelle; Bresciani, Mariano; Lupò, Luigi; Albergel, Clement; Giardino, Claudia

10. New Design Burned Area Blending Landsat 8 and 9 for Cerrado Biome the Case of MapIA30 Product
    Cunha, Paulo; Bernini, Henrique; Morelli, Fabiano; Victorino, Paulo

    Del Giudice, Liliana; Scarpa, Carla; Salis, Michele; Pellizzaro, Grazia; Bacci, Valentina; Arca, Bachisio; Duce, Pierpaolo

12. Complementarity Of Lidar And Sentinel-2 Time Series To Map Mediterranean Vegetation Fuel Types Using Features Selection And Deep Learning
    Denux, Jean-Philippe; Vigouroux, Julie; Chêret, Véronique

13. Mediterranean Vegetation Water Status Monitoring Based On Sentinel-2 Time Series - results from the SentHyMED campaign
    Denux, Jean-Philippe; Chêret, Véronique

14. Monitor Post-Fire Vegetation Dynamics In Forest Ecosystems At Monte Morrone (Abruzzo, Italy)
    Filipponi, Federico; Sarli, Maurizio; Rezaie, Negar; Adducci, Francesca; D'Andrea, Ettore

15. The Use Of Sentinel-1 Synthetic Aperture Radar Data For Mapping Burned Areas
    Gatti, Alessandro; Manzoni, Marco; Monti-Guarnieri, Andrea; Son, Giovanna; Venuti, Giovanna; Stroppiana, Daniela

16. Analysis Of Post-fire Vegetation Succession Processes Using Class Membership Probabilities (RF), Multitemporal Vectors, And Trend Analysis Applied To Landsat Imagery
    Iranzo, Cristian; Perez-Cabello, Fernando; Larraz Juan, Sergio

17. 1985-2020 Trends In Wildfire Burn Severity In Aragon, Spain
    Montorio, Raquel; Perez-Cabello, Fernando; Hoffren, Raúl; Iranzo, Cristian

18. The Comparison Of 1D And 3D-CNN Classification Of Satellite Observations For Wildfire Susceptibility
    Ivanda, Antonia; Šerić, Ljiljana; Stipaničev, Darko; Krstinić, Damir; Bugarić, Marin; Braović, Maja

19. Mapping Wildfire Scares – NDVI vs. NBR vs. AFRI
    Kanieli, Amnon; Salvoldi, Manuel

20. On the Potentiacy Of The Sentinel-1 For Fire Severity Assessment: The Experience Of Firesat Project
    Lasaponara, Rosa; Abate, Nicodemo; Aromando, Angelo; Loperte, Guido; Di Bello, Giovanni
21. Exploring the Time-lag Effect of Meteorological and Vegetation Features on European Summer Wildfires with Explainable Artificial Intelligence (XAI)
Li, Hanyu; Vulova, Stenka; Rocha, Alby Duarte; Kleinschmit, Birgit

22. Burned Area Detector: a QGIS Plugin for Mapping Burned Areas from Sentinel-2 Images
Martinioli, Thomas; Bordogna, Gloria; Brivio, Pietro Alessandro; Fraternali, Piero; Sali, Matteo; Son, Giovanna; Venuti, Giovanna; Stroppiana, Daniela

23. Lidar-Based Modeling Of The Interaction Between Wildfires And Bark Beetle Outbreak: New Perspective For Italian Forests
Mauri, Luca; Lingua, Emanuele

24. A Spectral Assessment Framework for Burned Detectability over Peatlands: a Case Study over Marden Moor Fires
Mota, Bernardo; Reynolds, Nicole; Pustogvar, Anna

25. Burnt Area Monitoring In Near-Real Time – Combining High Spatial And Temporal Resolution
Nolde, Michael; Rösch, Moritz; Riedlinger, Torsten

26. The Struggle To Combine Various Remote Sensing Data Into Input Layers For A Fire Modelling System – Example From The Czech Republic
Novotny, Jan; Podebradksa, Marketa; Kudlackova, Lucie; Píkl, Miroslav; Cienciala, Emil; Beranova, Jana; Trnka, Miroslav

27. Robust Dynamic Monitoring Tool For Systematic Surveillance Of Forest Fires By Synthetic Aperture Radar Imagery
Orban, Anne; Derauw, Dominique

Orusa, Tommaso; De Petrìs, Samuele; Sarvia, Filippo; Farbo, Alessandro; Cammareri, Duke; Freppaz, Davide; Borgogn-Mondino, Enrico

29. Change Detection Approaches with Synthetic Aperture Radar Images: Random Forests and Sentinel-1 Observations for Burned Areas Mapping
Mastro, Pietro; Pepe, Antonio

Agriillo, Emiliano; Filipponi, Federico; Inghilesi, Roberto; Mercatini, Alessandro; Pezzarossa, Alice; Tartaglione, Nazario

31. The PM2.5 Pollution from Biomass Burning in Galicia 2022
Quispe, Cesar; Oliva, Patricia

32. Assessing the Capability of Moderate Resolution Sensors to Detect Landscape Fires in Areas Under Shifting Cultivation in Laos
Roberts, Gareth; Unsworth, Alex

33. The Fire Regimes Of The Cerrado And Their Changes Through Time
Segura-Garcia, Carlota; C. Alencar, Ane A.; S. Arruda, Vera L.; Bauman, David; Silva, Wallace; Conciani, Dhemerson E.; Oliveira Menor, Imma

34. Extreme Climate Hazards Determining Fire Severity in Woodlands: A GeoAI Approach
Shirvani, Zeinab; Ban, Yifang

35. Mapping Fire Severity based on Sentinel 2 Earth Engine Compositing Imagery for the Northern Region of México
Silva-Cardoza, Adrián Israel; Vega-Nieva, Daniel José; Briseño-Reyes, Jaime; Silván-Cárdenas, José Luis

36. Two Decades of Fire Activity over the PEEX domain using Satellite and Modelled Data
Sogacheva, Larisa; Virtanen, Timo H.; Sundström, Anu-Maija; Kolmonen, Pekka; Sofiev, Mikhail; Lappalainen, Hanna K.; Ärola, Antti

37. Impact Of Deforestation On Fire Dynamics In The Dry Tropical Forests Of Southern Angola
Stellmes, Marion

38. The Importance of a Buffer Window in the Evaluation of GEO Satellite Fire Detection Algorithms
Vanunu, Asaf; Fonseca, Rodney; Galun, Meirav; Nadler, Boaz; Karnieli, Arnon

39. Examining Climate Drivers and Land Cover for Mediterranean Burned Area Prediction
Vissio, Gabriele; Baudena, Mara; Fiorucci, Paolo; Provenzale, Antonello; Turco, Marco

40. Classification Of Fuel Types For Sardinia Region (Italy) From Time Series Of Sentinel-2 Data In The Framework Of The FirEUrisk Project
Voltolina, Debora; Stroppiana, Daniela; Salis, Michele; Arca, Bachisio; Sterlacchini, Simone; Garcia, Mariano; Chuvieco, Emilio