



**Liaison with Validation Users
for the SDGs-EYES User Uptake Webinars
*Platform Guidelines***

FIRE-TRACE
***Advancing Greenhouse Gases Monitoring for Climate-
related SDGs Reporting***

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Guidelines

This document proposes clear and concise guidelines explaining how users can test the platform's tool. These guidelines cover both back-end and front-end instructions, as well as practical use cases for the tool.

1. Introduction

A brief explanation of the platform's purpose and its relevance to SDG monitoring and reporting

The SDGs-EYES platform will support users to monitor and report on the SDGs indicators selected in the project and develop new indicators based on them. Two usage modes of the platform corresponding to two different types of users will be available:

- Consultation mode: non-expert users will be allowed to explore the new indicators developed by the different pilots.
- Exploitation mode: expert users will be able to:
 - login the development environment, use (not modify) the existing algorithms, run owned algorithms, upload owned data, generate owned indicators, also based on the existing ones
 - execute from remote the indicators (through standard interfaces) and retrieve the results.

1. Platform's Role in Supporting SDG Indicators

How the platform supports specific SDG indicators and how it can be used to monitor them

The platform allows users to choose specific years and geographic parameters (such as region, province, and municipality) to calculate and visualise SDGs indicators. Through interactive maps/graphs, users can explore the SDG indicators. The platform also offers data downloads in common file formats (e.g. vector and CSV), providing convenient access and further processing of data.

2. Pilot Overview

Introduction of the pilot (and indicators), outline of its objectives, and explanation of how it aligns with specific SDGs. It also includes instructions on how to interpret and customize data visualizations and export data for reporting.

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<i>Objectives</i>	The Italian National Inventory Report (NIR) calculates forest fire emissions for the three main greenhouse gases (carbon dioxide, nitrous oxide, and methane) following the 2006 IPCC guidelines (with 2019 refinements that do not affect fire emissions components). The model is based on the approaches developed by Bovio (2007) and Chiriaco et al. (2013) and implemented by the CMCC in collaboration with the National Institute for Environmental Protection and Research (ISPRA), the latter responsible for the NIR. Activity data comes from the National Fire Census, a system provided by the "Carabinieri Forestali" (State Forestry Corps), which collects

	<p>information on fire events occurring in 15 Italian administrative regions, reporting for each fire event the area burned, the forest type, the burning height, and the type of fire (crown, surface, or ground).</p> <p>Such field data collection is time-consuming and costly, limited to events requiring Forestry Corps intervention and subsequent measurements, and suffers from uncertainty due to the detector and/or detection instruments. The Pilot focuses on increasing the accuracy and completeness of activity data using Copernicus, particularly by improving the spatio-temporal detail of burned areas and vegetation type/state. Thus, the Pilot aims to advance the "Greenhouse gas emissions from forest fires" indicator—SDG 13_10 indicator, related to SDG 13 (Climate Action)—through an automatic calculation of greenhouse gas emissions from forest fires, supported by high-resolution EO-derived data on the burned area, forest type, and pre- and post-existing biomass.</p>
<p><i>Alignment with SDGs (which are the SDG indicators calculated and which variables)</i></p>	<p>The indicator “Greenhouse gas Emissions from Forest Fires” (EFF) can be considered to belong to the EU SDG indicator 13.21 “Net greenhouse gas emissions of the Land use, Land use change and Forestry (LULUCF) sector” that measures net carbon removals from the LULUCF sector, considering both greenhouse gas (GHG) emissions and removals, and it is also reflecting in part the UN indicator 13.2.2 “Total greenhouse gas emissions per year”. The EU indicator is expressed as CO₂-equivalents (tons, tons per capita, tons per km²) using the global warming potential (GWP) of main GHGs emitted during the forest fire; the computation is performed following IPCC guidelines by Member States (MSs) and submitted to the EU and the United Nations Framework Convention on Climate Change (UNFCCC). The European Environment Agency (EEA) compiles – and publishes for the EU and all MSs - the EU aggregate data.</p>

Specific Guidelines for the Use Case: It provides a practical scenario for users to engage with the platform. It outlines the steps for monitoring and reporting, as well as the workflows for the pilot, from data access to report generation and feedback submission

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<p>Data Access: Instructions on accessing data related to GHG emissions, with a focus on key sources like forests</p> <p>Visualization: Step-by-step guidance on visualizing emissions data over time, including heatmaps of high-emission zones and comparative visualizations of different regions.</p> <p>Analysis: Generate reports detailing GHG emission levels, trends, and alignment with climate goals, including emission reductions or increases.</p> <p>Scenario: Users can select specific sectors and regions and analyze emission trends over selected timeframes to assess reductions or policy compliance.</p>	

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<p><i>Data Access</i></p>	<p>GHG emissions from forest fires are presented in the visualization panel as the total emissions, calculated as the sum of the three main greenhouse gases: CO₂, CH₄, and N₂O. Additionally, users can download a detailed results table that includes both the total GHG emissions and a breakdown of emissions for each individual gas, for each forest type.</p>


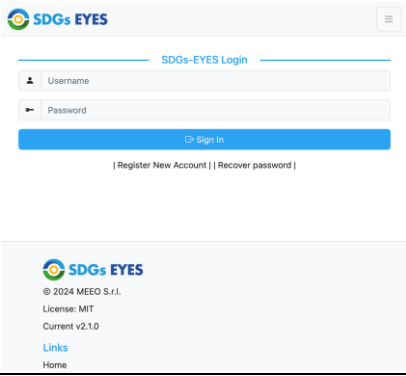
<i>Visualization</i>	Beyond visualising results on the interactive map, users can also visualise and download bar plots showing the GHG contribution of each forest class, and shapefiles of the burn areas to use in QGIS.
<i>Analysis</i>	Users can download a .csv file containing total GHG emissions and a shapefile that provides details on the burn area and emissions by forest class, enabling further data processing to meet their specific needs.
<i>Scenario</i>	Users can download GHG emissions for each year from the platform in csv/shapefile format and analyse trends in the data over 6 years offline, for the time period 2018-2023

3. Navigating the Platform

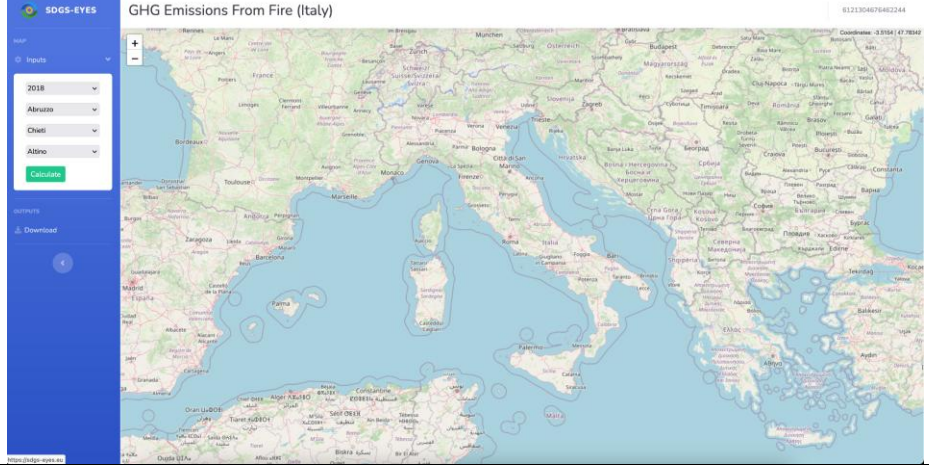
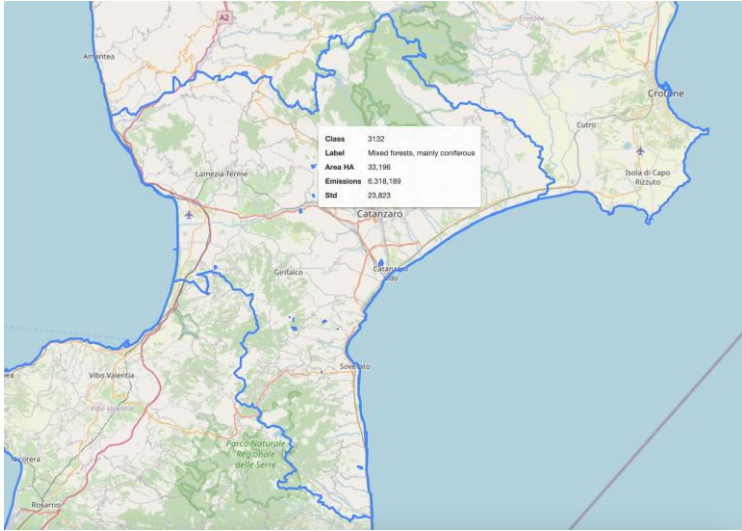
Step-by-step instructions on using the platform: logging in, accessing the dashboard, selecting relevant SDG indicators, and utilizing platform features. A detailed description of the platform can be found [here](#).

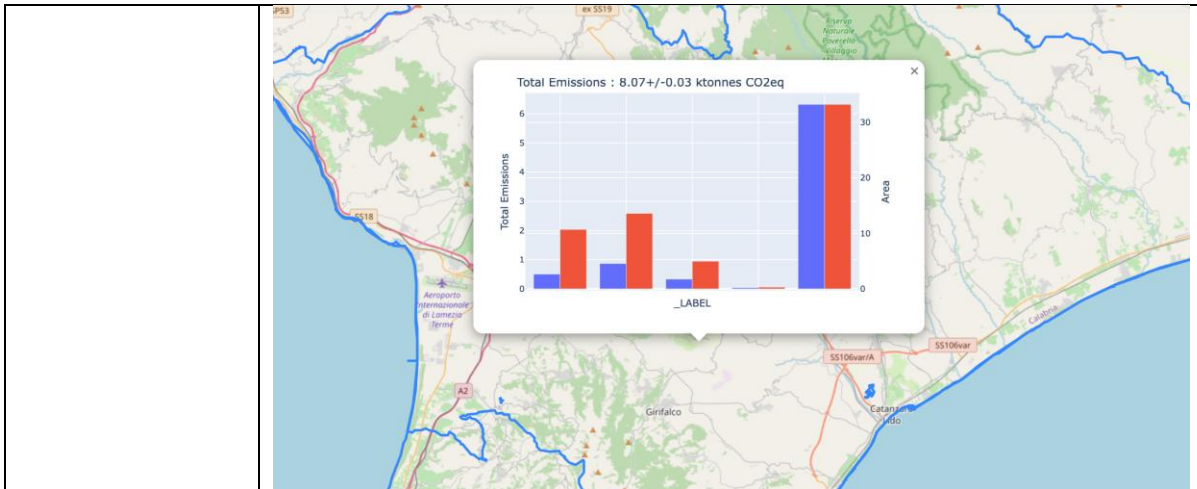
The platform offers two user-interaction modalities:

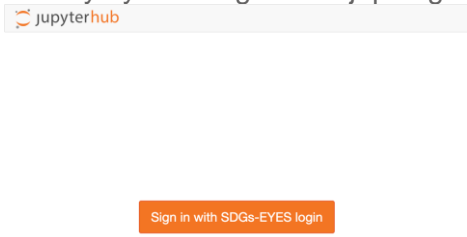
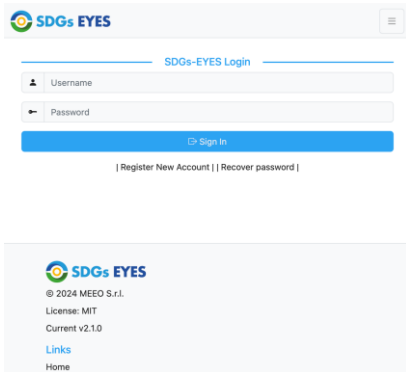
- **Pilot Frontends.** Dedicated frontend prototypes developed on the needs of the stakeholders to be consumed by the stakeholders are made available to demonstrate the capabilities of the new indicators.
- **Laboratory.** This is an environment where the indicators are developed, tuned, and finalised. Practically it is a Jupyter lab¹ environment with direct access to the datasets and can exploit the computational resources. The final code is stored on the project repository to be optimised and dockerized for execution.

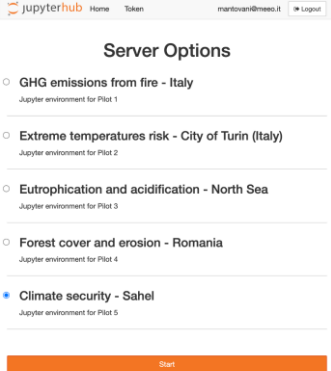
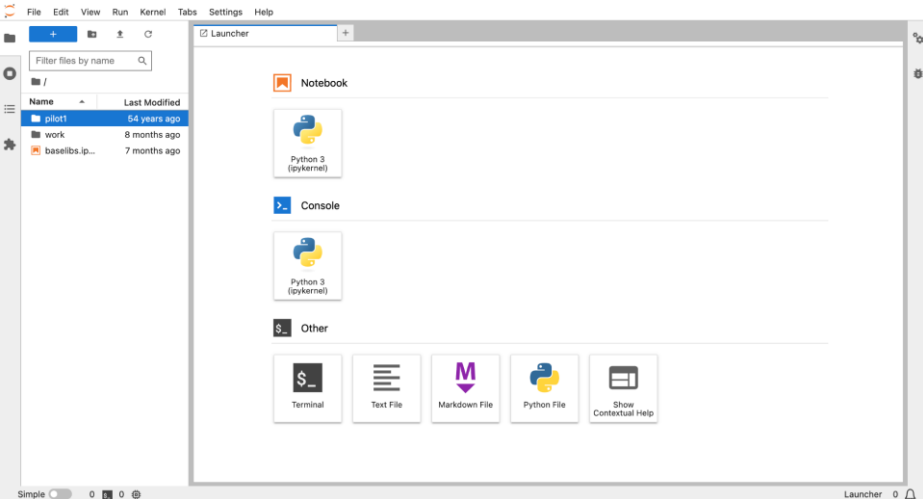
<i>Step-by-Step Process Pilot Frontend (Consultation)</i>	<p>The user accesses the User Interface (UI) via the website or directly by entering the url FIRE-TRACE (under configuration) (http://51.158.73.145:5000/)</p>  <p>Then the SGDs-EYES login page is presented.</p> 
<i>Logging-in</i>	The user enters credentials (under finalization) to access the UI and is redirected to the UI
<i>Accessing the dashboard</i>	The UI presents a selection menu on the left and a map in the middle displaying the results

¹ Jupyter-based python instance to provide access to Pilot material, including shared data and re-executable notebooks

	
<p><i>Selection of SDG indicators</i></p>	<p>The user selects the year, country, region and municipality and clicks on the “Calculate” button</p>
<p><i>Platform features</i></p>	<p>The resulting layer is displayed on the map. It is possible to zoom in or select the layer to be highlighted: Burn area or the region. Hovering the pointer over the area shows information such as vegetation type, extension in HA and emission quantity.</p>  <p>If the user clicks on the region, a bar chart is displayed with information about the emissions subdivided by vegetation and the related area. The download button allows the user to download the result in shp and csv.</p>



<p><i>Step-by-Step Process Laboratory (Exploitation - Using your own workspace) JupyterLab</i></p>	<p>The user accesses the SDGs-EYES Laboratory via the website or directly by entering the url <code>jup.sdgs-eyes.adamplatform.eu</code></p>  <p>Then the SDGs-EYES login page is presented.</p> 
<p><i>Logging-in</i></p>	<p>The user enters credentials to access the SDGs-EYES Laboratory. To create a new account follow the Sign-Up procedure i.e. “Register New Account”</p>
<p><i>Selection of Pilot</i></p>	<p>The user selects the Pilot of interest</p>

	 <p>Then the “baseline” of the select Pilot is loaded and the user has access to data and material made available for the Pilot</p> 
<i>Execution</i>	<p>Notice that (i) Users cannot modify the existing code, but can create a copy of it, modify and run it (ii) Users can upload owned data and run the code on them</p>

4. Testing

Information about the description of the datasets.

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<i>Input datasets</i>	EFFIS Burnt Areas (2018-2023) Corine Land Cover 2018 Level IV Italian National Forest Inventory 2015 (INFC2015) carbon stocks EFFIS Fire Severity (2018-2023) IPCC 2006 Emission Factors Administrative borders for Italian regions, provinces, municipalities
<i>Adjust to visualization variables</i>	The user can select year of choice (2018-2023, to be updated to the latest year) and the administrative boundary, ie. regions, provinces and municipalities. If they want to visualize emission results for the entire national territory, they may select “All regions”; if they want to visualize

	results for a single region, they can select the region of choice and choose “All provinces” and so on, up to the municipal level.
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FEEDBACK

1. Feedback Mechanism

Generic: Validation users are encouraged to suggest improvements and provide feedback on the platform’s usability. Feedback should cover aspects such as overall impressions of the new products, ease of data visualization, downloading, processing, and interpreting the data. Additionally, users can evaluate how well the new products meet their specific needs.

Platform usability	
Overall impression new products (exploitation)	
Visualization (exploitation)	
Downloading (exploitation-laboratory)	
Processing(laboratory)	
Interpreting data (exploitation)	
Expectation from needs (exploitation-laboratory)	

Workflows & Methodology: (i) **Spatial and Temporal Resolution & Scale:** Users will be asked to provide feedback on the importance of the increased spatial and temporal resolution of the new products. Specifically, they will assess how the higher resolution improves their analysis and decision-making processes. (ii) **Focus on Specific Indicators:** Users will identify which specific activities (e.g., those related to the pilots) the new products were most helpful for. They will also indicate whether the new products provided insights that they were previously unable to obtain from other sources. (iii) **Access & Visualization:** Users will provide feedback on how easily they could access and visualize the data, ensuring that the platform is user-friendly and meets their expectations. (iv) **Future Use and Recommendations:** Users will be asked to give their thoughts on how they plan to use the platform in the future and provide recommendations for improvement based on their experience.

	FIRE-TRACE
Spatial and Temporal Resolution & Scale	
Focus on Specific Indicator	
Access & Visualization	
Future Use	
Recommendations	

2. Support and Contact Information

Contact details for technical support, so SDGsEYES can elaborate a comprehensive FAQ section that addresses common issues and troubleshooting tips ensuring that users can quickly resolve problems and get assistance when needed

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For the validation phase, should you encounter any problem in accessing, or retrieving any data, please contact (i) For the service: manuela.balzarolo@cmcc.it or chiara.aquino@cmcc.it (ii) For Pilot Frontend (Consultation): alessandro.danca@cmcc.it or for the Laboratory (Exploitation - Using your own workspace) JupyterLab: natali@sistema.at and mantovani@sistema.at



***Learn more about SDGs-EYES:
<https://sdqs-eyes.eu/>***



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