Frequently Asked Questions

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EU Observatory on Deforestation and Forest Degradation (EUFO)

Introduction

This document provides information in the form of replies to general and specific questions about the EU Observatory on Deforestation and Forest Degradation (EUFO). Further documentation, in particular regarding the description of methodologies used to produce the spatial datasets that are available via the EUFO, should be consulted under each dataset, either via a link in the introductory note or the "Info tab" when viewing the dataset. Please consult this FAQ document and all other documentation before sending a specific question to the functional mailbox (jrc-forest-observatory@ec.europa.eu).

Acronyms

EUDR	EU Regulation on the making available on the Union market and the export from the Union of certain commodities and products associated with deforestation and forest degradation
EUFO	EU Observatory on deforestation and forest degradation
JRC	Joint Research Centre
FAO	Food and Agriculture Organization of the United Nations
FAOSTAT	Food and Agriculture Organization Corporate Statistical Database
UN COMTRADE	United Nations Commodity Trade Statistics Database
GISCO	Geographic Information System of the Commission

Contents

Context of the EUFO

What is the origin of the EUFO?

In 2019, the Commission announced an action to establish an EU Observatory on deforestation, forest degradation, changes in the world's forest cover, and associated drivers with the objective to facilitate access to information on supply chains for public entities, consumers and businesses. Another action that was announced refers to the Copernicus programme with the exploration of the feasibility of developing a Copernicus REDD+ service component to strengthen the existing global or national forest-monitoring systems.

Further details can be found in the Commission Communication "Stepping up EU Action to Protect and Restore the World's Forests" (COM(2019) 352 final) under Priority 5 "Support the availability of, quality of, and access to information on forests and commodity supply chains - Support research and innovation." The European Green Deal, the EU Biodiversity Strategy for 2030 and the Farm to Fork Strategy further confirmed the commitments of this Communication.

What is the position of co-legislators about the EUFO?

The Council welcomed the Commission's announcement of a Forest Observatory in coherence and without duplication of existing monitoring tools and mechanisms. It also invited the Commission to consider the feasibility, including financial and administrative implications, of an early alert mechanism to inform stakeholders about sourcing commodities from areas at risk of deforestation. The Council Conclusions from 16 December 2019, especially paragraph 39, provide further details (ST 15151 2019 INIT).

The European Parliament stresses the need for independent monitoring of production and trading of commodities associated with deforestation, cooperation with customs authorities regarding transparency and extended data requirements, and a further development of research and monitoring programmes such as Copernicus for early warning systems of deforestation and environmental degradation, forest fires and forest damage prevention. The European Parliament specifically "welcomes the creation of a forest observatory to collect data and information on deforestation in Europe as well as globally, and calls for this observatory to establish a mechanism to protect forest defenders". The European Parliament Resolution from 22 October 2022, especially the section on "Definitions, Forest Data and monitoring" (paragraphs 82 to 91), provides further details (P9_TA(2020)0285).

Which legal EU documents refer to the EUFO?

The EUFO has no legal or authoritative status. The EU Regulation on the making available on the Union market and the export from the Union of certain commodities and products associated with deforestation and forest degradation (Regulation (EU) 2023/1115, abbreviated EUDR) mentions the role of the EUFO in Recital 31. The EUFO should support the implementation of the EUDR by providing scientific evidence with regard to global deforestation and forest degradation and related trade. Specifically this includes facilitating access to information on supply chains and providing easy-to-understand data and information by linking deforestation and forest degradation to Union demand and trade of relevant commodities and products. This recital notes the provision of land cover maps as time series since the cut-off date (31 December 2020) and the participation in the development of an early warning system, pending a feasibility assessment. It specifically mentions cooperation with

competent authorities, relevant international organisations and bodies, research institutes, non-governmental organisations, operators, traders, third countries and other relevant stakeholders.

In addition, several non-legally binding documents refer to or mention the EUFO. Among those, the new EU Forest Strategy for 2030 (COM(2021) 572 final) notes the development of EO-based monitoring tools, operationalized by Copernicus and interactions with the Forest Information System for Europe. The new proposal for a Regulation on "a monitoring framework for resilient European forests" underlines in recital 9 the EUFO's role on global forest monitoring (COM(2023) 728 final). Question 64 in the Frequently Asked Questions about the EUDR (version dated 29 June 2023) explains recital 31 of the EUDR in simpler terms.

Who is responsible for the EUFO?

The Joint Research Centre (JRC) is responsible for the establishment (development and content) of the EUFO. The JRC is the European Commission's science and knowledge service. A combination of JRC in-house funding and contributions by other services ensures the operation and development of the EUFO.

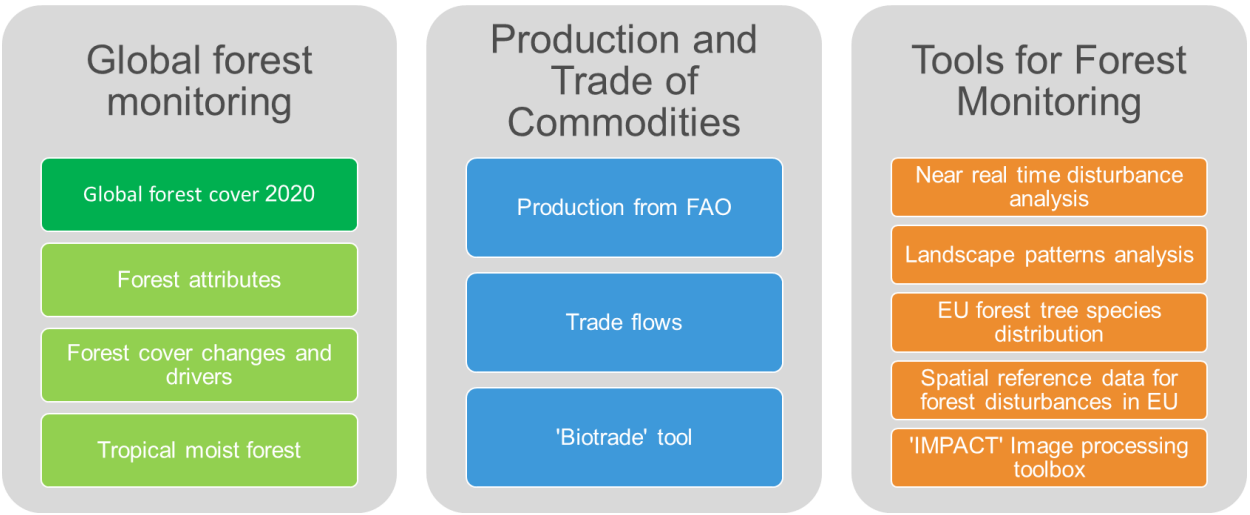
Content of the EUFO

What is the structure of the EUFO?

The current structure of the EUFO has three main components:

- Global Forest Monitoring
- Production and Trade of Commodities
- EU Tools for Forest Monitoring

Under each component, there is a range of data sets, software tools, or specific visualizations. The following figure illustrates the components and sub-components of the EUFO (status from 7 December 2023).



What are the sub-components under each component?

Maps of forest cover and attributes are the sub-components under the Global forest monitoring component. There are four sub-components of the Global forest monitoring that can be interactively visualized:

- Global forest cover 2020: Spatial dataset showing the global forest cover presence in year 2020 (cut-off year in EUDR) at 10m spatial resolution obtained through the integration of global spatial datasets on land cover status in year 2020
- Forest attributes: Global spatial dataset of key landscape features about forest derived from the Copernicus global land cover map of year 2019 at 100 m resolution. Forest attribute values are made available at country level and for larger regional domains
- Forest cover changes and drivers: Global spatial dataset of global forest disturbances such as deforestation, forest harvest, selective logging, forest fires, extreme events, insect defoliations, etc. during period 2015-2022. Forest disturbance areas are made available at country level
- Tropical moist forest: Spatial dataset showing the coverage of undisturbed tropical moist forest and disturbance patterns in tropical moist forests during the period 2000 to 2022

Under the Production and Trade of Commodities component, there are three sub-components with interactive visualization of global datasets regarding the national-level production of commodities and products subject to the EUDR, and the volume of trade of such commodities between third parties and the EU:

- Production: Values of production quantities and area harvested in each producing country based on FAOSTAT sources
- Trade flows: Annual bilateral trade of the EUDR product list (Annex II) between countries. The data shown are based on FAOSTAT and UN COMTRADE. The data are available also as aggregated values for the bilateral trade with EU-27. Additionally, maize products are provided.
- Toolbox for the download and analysis of production data (FAOSTAT), and bilateral trade (FAOSTAT and UN COMTRADE)

The sub-components under 'Tools for Forest Monitoring' presents a few JRC tools or technical approaches that can be useful for monitoring of forest cover or attributes. These tools link to websites that provide access to software or applications. Tools and approaches include:

- Near real time disturbance analysis
- Landscape pattern analysis
- EU forest tree species distribution
- Spatial reference data for forest disturbances in Europe
- Impact toolbox for image processing and environmental monitoring

Will there be changes to the EUFO and its content?

The EUFO undergoes regular maintenance and updates. Current products may be improved or revised, as needed or appropriate. Any update will be duly documented. To the extent possible, historical data will remain available along with the new data sets.

What is the cost of the EUFO?

Data and tools that are made available through the EUFO are publicly available and free-of-charge for any user. Currently the European Commission covers all costs for maintenance and development of the EUFO.

What is the spatial reference system used to display the maps?

The EUFO uses the geographical projection (latitude and longitude) with the WGS84 geodetic datum for all spatial data. The geographical coordinates are expressed in decimal degrees of latitude and longitude.

What is the country nomenclature?

National estimates that are derived from maps are based on boundaries of countries as provided by GISCO. National data on production and trade use country allocations according to FAO and COMTRADE sources.

Specific sub-components of the EUFO

What is the global map of forest cover of 2020?

The global map of forest cover provides a spatially explicit representation of forest presence and absence for the year 2020. This map builds on several global wall-to-wall datasets or datasets covering large areas that are global for their given scope. The map is therefore a harmonized, globally-consistent representation of where forests existed in 2020. The global input layers and mapping approach will be described in a separate technical report expected to be released by March 2024.

Why is year 2020 important?

The EUDR sets 31 December 2020 as cut-off date for the Regulation. That means, deforestation and forest degradation after year 2020 are subject to the Regulation.

What is the definition of forest in the global map of forest cover of 2020?

The definition of forest in the global forest cover map of 2020 follows the definition of forest in the EUDR as defined in article 2 (4):

"'forest' means land spanning more than 0.5 hectares with trees higher than 5 metres and a canopy cover of more than 10 %, or trees able to reach those thresholds in situ, excluding land that is predominantly under agricultural or urban land use;"

Agricultural use and agricultural plantation are defined in Article 2 (5) and 2 (6) as follows:

- "'agricultural use' means the use of land for the purpose of agriculture, including for agricultural plantations and set- aside agricultural areas, and for rearing livestock;
- 'agricultural plantation' means land with tree stands in agricultural production systems, such as fruit tree plantations, oil palm plantations, olive orchards and agroforestry systems where

crops are grown under tree cover; it includes all plantations of relevant commodities other than wood; agricultural plantations are excluded from the definition of 'forest'"

It should be noted that all plantations of relevant commodities other than wood, that is cattle, cocoa, coffee, oil palm, rubber, soya, are excluded from forest. It has to be noted that this global map displays predominantly forests with standing trees.

What is the resolution of global map of forest cover of 2020?

The spatial resolution of the global forest cover map is 10m (i.e. pixels have a size of 10m x 10m or 0.01 ha at the equator). However a few input layers used to create the map are at 30m spatial resolution or coarser. The effects of these differences in the resolution can only be noticed occasionally in the map (i.e. over a very limited number of areas) and are only visible when viewing at very high zoom levels.

Post processing removed patches of forest and non-forest smaller than 0.5ha. A patch is defined as connected pixels of the same class (forest or non-forest) in cardinal and intercardinal directions (eight-neighbour rule).

Input data layers were not specifically projected to a common global 10m geographical grid system with WGS84 datum but were transformed 'on the fly' during the integration of the map. In rare cases, the effects of the on-the-fly-projection of the data layers can be noticed for locations far from 0 degrees latitude and longitude.

What software was used to generate the global forest map?

The map was compiled in Google Earth Engine (GEE, Google Earth Engine).

What are known issues of the global forest map?

For a list of known issues please refer to this website: https://forobs.jrc.ec.europa.eu/GFC

Where can the global forest map be accessed or downloaded?

Access and download of the global forest cover map of 2020 is possible on different websites with varying functionalities:

- EUFO (interactive visualization) : https://forest-observatory.ec.europa.eu/forest/gfc2020
- Web Mapping Service: https://ies-ows.jrc.ec.europa.eu/iforce/gfc2020/wms.py?
- JRC data catalogue (Metadata access): https://data.jrc.ec.europa.eu/dataset/10d1b337-b7d1-4938-a048-686c8185b290
- Data download: https://forobs.jrc.ec.europa.eu/GFC
- Google Earth Engine: https://developers.google.com/earth-engine/datasets/catalog/JRC_GFC2020_V1

What is the spatial and temporal resolution of the 'production data'?

The production and area harvested (i.e., the hectares required to produce the selected commodity) are based on the FAOSTAT dataset and are therefore reported as annual values by country. The EUFO also provides five-year averages.

What is the spatial and temporal resolution of the 'trade data'?

The trade data in the EUFO are based on annual values by country from the FAOSTAT and UN COMTRADE. The EUFO provides also five-year averages. By default, the EUFO shows UN COMTRADE values, but the user can opt to display FAOSTAT data. By default, the dashboard shows the bilateral trades that contribute to the 95% of the total trade volume related to the selected reporter. This threshold can be adjusted in the dashboard.

Which commodities and products are reported in the EUFO?

The list of products included in the EUFO is based on the Harmonized System (HS) commodity code reported in the Annex II of the EUDR. Additionally, maize products are included in the EUFO.

Which trade flows are reported in the EUFO?

In the EUFO we report the trade between countries as import declared by the reporter. For example, for the trade flow of cocoa beans between country A and B, we show the import declared by country B from country A.

Data and information use

What is the legal status of data and information?

Data on the EUFO aim to provide sound scientific and transparent spatial information at global scale for forest cover, deforestation and forest degradation and related trade of commodities and products. The data underpinning the maps and visualizations can be freely accessed. Any information and data sets shown on the EUFO have no legally binding meaning or value. They do not implement, imply, or suggest a legal position of the European Commission.

What will be the use of the global forest cover map of 2020?

In the context of the EUDR, the global forest cover map of 2020 is non-mandatory, non-exclusive and not legally binding. The map could serve operators in the assessment of risk of deforestation when declaring land parcels by geolocation from which commodities or products within the scope of the EUDR are imported to or exported from the European Union market. The European Commission foresees the interoperability between the information system for making declarations of due diligence and the global forest cover map of 2020. However, a spatial match or non-match between a due diligence statement and 'forest' in the global forest cover map of 2020 does neither mean with full confidence that the parcel has been deforested or has not been deforested, respectively, since 2020.

The map can also be used for verification by competent authorities, e.g. when selecting sample areas to carry out detailed and robust checks.

Are there different versions?

Currently all datasets are in version 1. Data sets on the EUFO will improve over time. New versions of any dataset will be duly documented. To the extent possible, historical data will remain available along with the new data sets.

Can I download data and information?

The user can download most maps and statistics (i.e. estimates derived from the available spatial datasets). For statistics, click in the upper right of each figure and select the file format for the download as data or as image. For maps, navigate to the info tab, either by clicking on a country or selecting the "toogle sidebar" on the upper right of map viewer, and from there navigate to the download site.

Can I use data and information for my own work, e.g. in presentations, studies, scientific papers, etc.?

You may use data and information from the EUFO for your own work when duly referenced with the original source of the data (e.g. JRC, FAO, UN COMTRADE, etc.) and follow the data policy of each individual data set provider. We encourage the users to refer to the specific products and their underpinning scientific references that are generally available under the Info tab of each data set or statistic.

Suggested generic reference for the EUFO: "EU Observatory on deforestation and forest degradation. Joint Research Centre, European Commission, https://forest-observatory.ec.europa.eu, Last access: DATE."

Suggested references for specific datasets under the EUFO:

- For the global map of forest cover in 2020: "Bourgoin, Clement; Ameztoy, Iban; Verhegghen, Astrid; Carboni, Silvia; Colditz, Rene R.; Achard, Frederic (2023): Global map of forest cover 2020 – version 1. European Commission, Joint Research Centre (JRC) [Dataset] PID: http://data.europa.eu/89h/10d1b337-b7d1-4938-a048-686c8185b290."
- For data on production derived from FAOSTAT: "Data manipulation performed by the EU. Underlying data obtained from FAO. FAOSTAT Production and Forestry databases, licensed under CC-BY-NC-SA 3.0 IGO (https://creativecommons.org/licenses/by-nc-sa/3.0/igo/). Extracted from: https://www.fao.org/faostat/en/#home. Date of Access: 09-10-2023."
- For data on trade derived from FAOSTAT: "Data manipulation performed by the EU. Underlying data obtained from FAO. FAOSTAT Trade database, licensed under CC-BY-NC-SA 3.0 IGO (https://creativecommons.org/licenses/by-nc-sa/3.0/igo/). Extracted from: https://www.fao.org/faostat/en/#home. Date of Access: 09-10-2023."
- For data on trade derived from UN COMTRADE: "Data manipulation performed by the EU. Underlying data obtained from UNITED NATIONS, UN COMTRADE DATABASE: licensed under UN COMTRADE conditions available at https://shop.un.org/databases#Comtrade, extracted from https://comtradeplus.un.org/BulkFilesSearch. Date of Access: 09-10-2023."

If you have any question about a proper reference or you would like to collaborate, please send an email to jrc-forest-observatory@ec.europa.eu.

Known issues

Where can I find out about known issues?

Known issues are documented in the respective sub-components, either under the “Info tab” (see upper right) or in the related software and tool documentation.

How can I report issues?

Please write to jrc-forest-observatory@ec.europa.eu to report any issue. This functional mailbox aims to collect feedbacks on the EUFO interface or its content e.g. design and functionality of the EUFO observations, reporting of errors in data, recommendations for improvements, etc. Please mention explicitly the issue in the subject line and a short summary at the beginning of the email. This will help to categorize quickly your feedback and, if applicable, to provide replies in reasonable time.