Side Event of the UN Geospatial Network at the Eleventh Session of UN-GGIM

The Global Agro-Ecological Zones and Hand-In-Hand initiative
- Since its establishment, FAO has been involved in provision of geospatial data, information and services;
- FAO NSL Geospatial Unit plays a fundamental supporting role in support to food security and monitoring natural resource use and propose adequate information for policy relevant solutions;
- Through remote sensing, we define:
  • standards and indicators for the regular monitoring,
  • qualitative and quantitative assessment of natural resources
  • methodologies and tools that support governments and institutions
- Our work supports development plans, growth strategies and decision-making processes in many countries.
GEOSPATIAL PLATFORMS, TOOLS & DATA

* Under development or under consideration for re-activation
A GIS data platform supports all stakeholders with rich, shareable data (agro-ecology, water, land, soils, GHG, etc.), respecting the proper protocols of data confidentiality. The platform also includes a subnational system of donor information developed by FAO and its partners.

Welcome to FAO Hand-In-Hand Geospatial Platform
The Hand-in-Hand Geospatial Platform is a supporting tool for the Hand-in-Hand (HiH) Initiative, an evidence-based, country-led and country-owned initiative to accelerate the Sustainable Development Goals (SDGs), SDG 1 and SDG 2, using the most sophisticated tools available, including advanced geo-spatial modeling and analytics to identify the biggest opportunities to raise the incomes and reduce the inequities and vulnerabilities of rural populations, who constitute the vast majority of the world’s poor.

The platform brings together over 30 technical units from multiple domains across FAO, from Animal Health to Trade and Markets, integrating spatial data in an inter-disciplinary way.
Global Agro-Ecological Zones Version 4
Launched June 2021

https://gaez.fao.org/
The GAEZ v4 data was developed in collaboration between FAO and IIASA, through models developed over the past three decades.

Global, gridded raster outputs across hundreds of different data variables, climate models, time frames, and crops – 600,000+ raster files.

Varying data types – classes, integers, floating points, etc.

Stored on various hard drives, available on request, too big to easily move around.

Users need guidance to know which data is relevant, and how to get it, as well as how to incorporate it into their own research.
GAEZ THEMES

1. Land and Water Resources
2. Agro-climatic Resources
3. Agro-climatic Potential Yield
4. Suitability and Attainable Yield
5. Actual Yields and Production
6. Yield and Production Gaps
TECHNICAL APPROACH

1 Open Data Site
GAEZ data should be open, with clear model documentation, helpful guidance and community feedback

2 Web Services
Data should be easy to integrate into other systems, and should be displayed intelligently (not just an FTP site)

3 Ease of Use, Filtering and Visualization
Users should be able to investigate the data, find themes of interest, intelligently filter, and display the data as designed

ArcGIS Online
Hub Sites
Experience Builder
Web AppBuilder

ArcGIS Image Server
Mosaic Datasets
Image Services
WCS/WMS
Query + Render

Data Storage in AWS S3
Direct Download Links
Batch Link Export -> Download

Infrastructure
1 VM at FAO
1 AWS Bucket
Sites, Pages, Apps in FAO’s ArcGIS Online organization
GAEZ VIEWER

Table of Rasters

Filter Rasters

Change Renderer

Description

Switch Themes
IMAGE SERVICES AND CLIENTS

Public, RESTful Web Services
Fully documented, used by thousands of deployments

Capabilities
Export Images
Mosaic together rasters
Query attributes, filter and select
Generate raster statistics over areas of interest
Support dynamic image export + download

Access from Other Clients
Desktop GIS tools
Mobile/Web apps
Python Notebooks + tools

Summary Tables
Summarized Yield and Production data by geographic area:
Region, watershed, country, etc.

Figure 4-4 Agro-climatic potential yield (kg DW/ha) of rain-fed wheat, high inputs, climate of 1961–2010

Source: FAO and IRAE, 2021
NEXT?

Broad launch in June of 2021
Data also shared through FAO
Hand in Hand site

Upcoming: GAEZ v5
Increased National Capacity
Establish community of practice
Update source datasets and parameters
Additional crops

https://gaez.fao.org
https://data.apps.fao.org
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