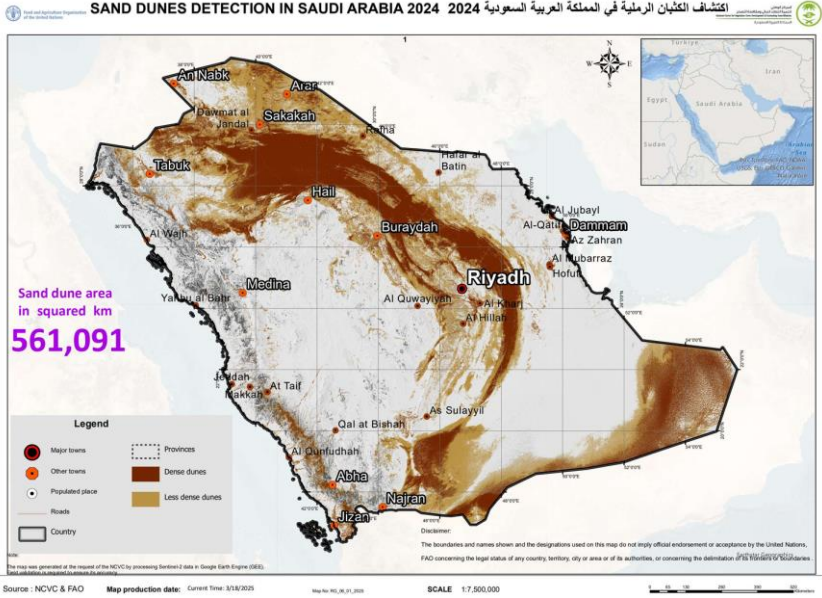


FAO KSA Geospatial Data – Sand Dune Detection Across Saudi Arabia

Part 1: Basic Metadata (Mandatory)

1.01 Thumbnail	
<i>Prepare small thumbnail that represents this dataset. Create and save thumbnail. Insert thumbnail in the space provided and indicate the file name.</i>	
Create and save thumbnail	Enter file name
	
1.02 – Title	
<i>Descriptive title for this data. Should provide sufficient information to external users.</i>	
Enter Data Title	
<i>Sand Dune Detection Across Saudi Arabia</i>	
1.03 – Abstract	
<i>Provide a short and concise abstract which summarizes what this data is about. Similar to the abstracted provided in a scientific paper.</i>	
Enter data abstract	

This dataset presents a geospatial analysis of sand dune distribution and dynamics across various regions of the Kingdom of Saudi Arabia. It is derived from Sentinel-2 surface reflectance imagery acquired between January 1, 2023, and July 3, 2023. The dataset utilizes cloud-free, atmospherically corrected imagery processed through spectral band combinations (B2, B4, B7, B8, B11, and B12) to generate a median composite image. Principal Component Analysis (PCA) was applied to enhance the detection of spectral variations associated with sand movement. Additionally, the Normalized Difference Sand Index (NDESI) was calculated to identify and map active dune fields. The final dataset includes clipped outputs, spatially referenced dune indices, and derived sand movement layers intended to support environmental monitoring, desertification assessment, and land surface dynamics analysis throughout the Kingdom.

1.04 – Date type

Provide all three type of dates - Creation date, Publication date, and Revision date.

Identification of when a given event occurred

Creation	Dec 2024
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Publication	2024
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Revision	2024
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relevant date	2024
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1.05 – Group

The group, department or unit to which this data belongs.

Enter group name

**Registered Members,
FAO Spatial Data Group,
Natural Resources Management Component NRM - FAO KSA**

1.06 – Category

Provide one primary category to which this data belong. Select from the list provided. Possible categories related to the SRADP project are highlighted in green color.

Field declared Mandatory by the Metadata Schema

Select one of the following : (highlighted by Yellow)

Imagery Base Maps Earth Cover	KSA
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Society	FAO
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Economy	Land surface temperature
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Utilities Communication	
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Environment	-
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Oceans	-
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1.07 – Free-text Keywords

Keywords helps Search Engines such as Google find data requested by users. Use FAO AGRIS to select the most appropriate keywords for this data. To make the data discoverable, provide a minimum of 5 keywords.

A space or comma-separated list of keywords. Use the Widget to select from Hierarchical tree.

REQUIRED: Common-use word or phrase used to describe the subject of the data set. (Provide 5 keyword minimum)

KSA

FAO

Land surface temperature

-

-

Biota	-
Health	-
Elevation	-
Geoscientific Information	-
Planning Cadastre	-
Inland Waters	-
Boundaries	-
Structure	-
Transportation	-
Intelligence Military	-
Location	-
Climatology Meteorology Atmosphere	-
Farming	-
Population	-

Part 2: Location and Licenses (Mandatory)

2.01 Language

Provide data language

Language used within the dataset

Enter data language

English

2.02 License

Provide the type of license under which this data is published and intended to be used.

License of the Dataset

Select one of the following License: (highlighted by Yellow)

NextView

Not Specified

Open Data Commons Open Database License / OSM

Public Domain

Public Domain / USG

Varied / Derived

Varied / Original

2.03 Attribution

Identify the entity or agency with authority and responsibility over this data.

Authority or function assigned, as to a ruler, legislative assembly, delegate, or the like.

***Field declared Mandatory by the Metadata Schema**

Enter attribution for this data

This dataset has been carefully developed and curated by FAO KSA in close collaboration with national institutions, scientific bodies, and governmental agencies. It is built on a foundation of high-quality spatial data and undergoes continuous refinement to ensure its accuracy and usability. The expertise of GIS specialists, environmental analysts, and policymakers has contributed to its comprehensive design and functionality.

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2.04 Regions

Identify the region that the data covers. You can provide several regions.

Enter global or specific regions

Aljawf

2.05 Data quality statement

Statement on the data quality. This allows any known issue about the data quality to be documented and shared with data user so that they can use the data appropriately.

Provide data quality statement

The dataset is based on reliable meteorological data sources. Updates are conducted periodically to maintain accuracy.

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2.06 Restrictions

Indicate any know restriction on this data. You could consider the following when assessing data restriction:

- (1) Exclusive right to the publication, production, or sale of the rights to a literary, musical, or artistic work, or to the use of a commercial print or label, granted by law for a specified period of time to an author, composer, artist, distribution
- (2) Rights to financial benefit from and control of distribution of non-tangible property that is a result of creativity
- (3) Formal permission to do something
- (4) Government has granted exclusive right to make, sell, use or license an invention or discovery
- (5) Produced or sold information awaiting a patent
- (6) Withheld from general circulation or disclosure
- (7) Name, symbol, or other device identifying a product, officially registered and legally restricted to the use of the owner or manufacturer
- (8) Other restrictions

Limitations Placed upon the access or use of the data

** Field declared Mandatory by the Metadata Schema*

Enter any know data use restriction information

(3) Formal permission to do something

This data can be used for presentation and View, if there is any kind of modification, coordination with the GIS Department in organization's office in Saudi Arabia is required.

2.07 Other constraints

Identify any other constraints on this data that would be important to document and share with the data users

Enter other constraints on this data



Part 3: Other Data Description (Optional)

3.01 Edition

If the data is linked or resulting from work that has editions, indicate the edition for this dataset.

Version of the cited resource

Enter Edition

Version 1

3.02 DOI

The DOI (Digital Object Identifier) will be assigned by the Metadata Administrator.

DOI will be added by Admin before publication

Create and enter the data DOI

3.03 Purpose

The purpose for which this dataset and related studies were undertaken.

Provide data purpose

The Land Surface Temperature (LST) dataset is designed to provide an in-depth, spatially accurate representation of key geographic features in Saudi Arabia. Its primary goal is to support decision-makers, planners, and researchers in conducting data-driven assessments and implementing evidence-based strategies. By offering comprehensive geospatial insights, this dataset contributes to sustainable development, efficient resource allocation eg reseedling, and improved environmental resilience.

3.04 Maintenance frequency

The frequency for data update.

Frequency with which modifications and deletions are made to the data after it is first produced

Select one of the following : (highlighted by Yellow)

Frequency of maintenance for the data is not known

Data is repeatedly and frequently updated

There are no plans to update the data

Data is updated each day

Data is updated every year

Data is updated as deemed necessary

Data is updated each month

Data is updated every two weeks

Data is updated in intervals that are uneven in duration

Data is updated on weekly basis

Data is updated twice each year

Data is updated every three months

3.05 Spatial representation type

How the spatial data is presented, Method used to represent geographic information in the dataset

Select one of the following : (highlighted by Yellow)

Grid/raster data is used to represent geographic data

Three-dimensional view formed by the intersecting homologous rays of an overlapping pair of image

Textual or tabular data is used to represent the geographic data

Triangulated irregular network

Vector data is used to represent geographic data

Scene from a video recording

3.06 Supplemental information (Remarks)

Provide any additional supplemental information about this data that could help the user when using this data

Enter supplemental information / Remarks

In addition to its primary functions, this dataset can be effectively integrated with auxiliary spatial datasets to enhance geographic analysis and visualization. Users can overlay it with climate models, hydrological data, and demographic statistics to derive valuable correlations and insights. The dataset also supports advanced geospatial applications such as predictive modeling, artificial intelligence-based land assessments, and urban expansion studies.

3.07 Temporal extent Start and End

Provide temporal extent start and end that may have bearing on this data.

Temporal extent start		Temporal extent end	
Date	Time	Date	Time
Enter temporal start date	Enter temporal start time	Enter temporal end date	Enter temporal end time

3.08 Responsible Parties / Point of Contact

Who can be contacted about this data? This is usually the metadata administrator.

Admin Name

Enter Metadata Admin

Dr. Njeru Jeremiah – Chief Technical Advisor of Natural Resource Management NRM – FAO KSA

Dr. Ouerchefani, Dalel - TECHNICAL ADVISER, FAOSA

Mr. Gabriel Vincent Sanya - GISRS and Land Cover Mapping Expert -FAOSA

Mr. Haitham Abdullah – GIS Specialist – FAO KSA

3.09 Responsible and Permissions / Owner

Who is the responsible over this data? This is usually the person that led or supported the creation of the data

Data Responsible / Owner

Enter data owner

FAO

NCVC Geo-Spatial Unit

MoEWA

3.10 Metadata Author

Who is the author of the metadata? This is usually the person that led or supported the creation of the data.

Data Responsible / Owner

Enter Metadata Admin

GIS Department in Food and Agriculture Organization of the United Nations (FAO) in Saudi Arabia

Part 4: Part 4 - Data Attributes (Optional)

4.01 Key data features and attributes

Detailed description of the data layer features and attributes will be provide in a separate custom template for data features and attributes description. Here, the key features and attributes (objects) for this data are provided.

Description of key features and attributes

[illegible]