Saudi Arabia Country Insights

21 Feb 2025

Congratulations! This country has available data.

This page includes country-specific insights and more detailed analysis, including carbon stocks, emissions factors, and ecosystem wetland area for mangrove, marsh, and seagrass ecosystems. This report details information for the selected country, **Saudi Arabia**.

Please explore the rest of the dashboard for more exciting visualizations, map features, and data.

Resources referenced to calculate estimates for **Saudi Arabia** are listed below under 'References' at the bottom of this document.

Total Carbon Stock Estimates

Total Carbon stock estimates were calculated for each country and habitat At this time total Carbon stock estimates do not include seagrass

We estimate that **Saudi Arabia** contains between 3694139.75 to 2635834.84 metric tonnes of soil C to a depth of 1 m, with a mean estimate of 3164987.29 metric tonnes C.

country	territory	habitat	total_stocks	total_stocks_lower	total_stocks_upper	total_stocks_se
Saudi Arabia	Saudi Arabia	total	3164987	3694140	2635835	269975.7

This total estimate includes total mangrove carbon stocks, from NA to NA metric tonnes of soil C to a depth of 1 m, with a mean estimate of 3128378.07

country	territory	habitat	total_stocks	total_stocks_lower	total_stocks_upper	total_stocks_se
Saudi Arabia	Saudi Arabia	mangrove	3128378	NA	NA	270452.5

This total estimate also includes total tidal marsh carbon stocks, ranging from NA to NAmetric tonnes of soil C to a depth of 1 m, with a mean estimate of 36609.22

country	territory	habitat	total_stocks	total_stocks_lower	total_stocks_upper	total_stocks_se
Saudi Arabia	Saudi Arabia	marsh	36609.22	NA	NA	5147.709

Seagrass carbon stocks were not included in the total value due to lack of a global, transparent, and independently assessed seagrass habitat map, however, best available areas and stocks for **Saudi Arabia** are explored in the following 'Wetland Areas and Activities' section.

Wetland Areas and Activities

We estimate mangrove area in **Saudi Arabia** to be 7116.35894531002 to 162.298585917955 hectares, with a mean estimate of 8104.60640981888 hectares according to Global Mangrove Watch Bunting et al. (2018).

We estimate tidal marsh area in **Saudi Arabia** to be 86.9592456833738 to 162.298585917955 hectares, with a mean estimate of hectares according to Worthington et al. (2024).

We estimate seagrass area to be **Saudi Arabia** to be a mean of 37000 hectares, according to McKenzie et al. (2020), aggregating data from multiple sources.

McKenzie et al. (2020) classifies seagrass area estimates as either high or medium to low confidence. seagrass_area_high_confidence % of the estimated seagrass area of **Saudi Arabia** is considered high to medium confidence, while seagrass_area_low_confidence % of the estimated seagrass area is categorized as low confidence.

Calculated Stocks and Emissions Factors

This section of the report details whether data is available to estimate Tier I, Tier II, or Tier III value estimates for tidal marsh, mangrove, and seagrass ecosystems in **Saudi Arabia**.

If data for the selected country is available in the Coastal Carbon Atlas, we have applied a Tier II emission factor based on a simple average of country specific data queried from the Atlas.

Data from **Saudi Arabia** includes 0 soil profiles from 0watersheds. This data comes from 0 different habitat types.

If there is not yet any country specific information in the Coastal Carbon Atlas, we instead applied IPCC Tier I estimate. IPCC Tier I estimates for mangrove, marsh, and seagrass ecosystems are listed below. **SOURCE**

The table in this section also details whether the calculated Tier II value is significantly different from the estimated Tier I values. This is observed in the "Overlap" column.

Table 4: IPCC Tier I Value Estimates

Habitat	Mean	Lower_CI	Upper_CI
mangrove	386	351	424
marsh	255	254	297
seagrass	108	84	139

Table 5: Availiability of Tier I and Tier II Data

Country	Territory	Habitat	Tier	Overlap
Saudi Arabia	Saudi Arabia	mangrove	Tier I	NA
Saudi Arabia	Saudi Arabia	marsh	Tier I	NA
Saudi Arabia	Saudi Arabia	seagrass	Tier I	NA

Tier I Carbon Stocks

This table includes Tier I Carbon Stocks included for **Saudi Arabia**.

country	territory	habitat	stock_MgHa_mean	stock_MgHa_lowerCI	stock_MgHa_upperCI	tierCI	carbon_pool
Saudi Arabia	Saudi Arabia	mangrove	386	351	424	TierI	soil
Saudi Arabia	Saudi Arabia	marsh	255	254	297	TierI	soil
Saudi Arabia	Saudi Arabia	seagrass	108	84	139	TierI	soil

Tier II Carbon Stocks

This table includes Tier II Carbon Stock estimates for **Saudi Arabia**. Estimates in this table were derived from data queried from the Coastal Carbon Atlas. SOURCE

country	territory	habitat	tier	carbon_pool	stock_MgHa_mean	stock_MgHa_se	stock_MgHa_upperCI	stock_MgHa_lowerCI

Tier III Carbon Stocks

Tier III carbon stocks were estimated, when available, from remote sensing data from Maxwell et al 2021 and Sanderman et al 2018. The table below details whether estimated values are available for **Saudi Arabia**, and any overlap with associated Tier I or Tier II values.

If there are no Tier III estimates associated with the selected country, please refer to Tier I and Tier II tables.

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## [1] "There are currently no Tier III remote sensing estimates for this country. Please refer to Tier
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References

Bunting, Pete, Ake Rosenqvist, Richard M. Lucas, Lisa-Maria Rebelo, Lammert Hilarides, Nathan Thomas, Andy Hardy, Takuya Itoh, Masanobu Shimada, and C. Max Finlayson. 2018. "The Global Mangrove Watch—a New 2010 Global Baseline of Mangrove Extent." *Remote Sensing* 10 (10): 1669. https://doi.org/10.3390/rs10101669.

McKenzie, Len J, Lina M Nordlund, Benjamin L Jones, Leanne C Cullen-Unsworth, Chris Roelfsema, and Richard K F Unsworth. 2020. "The Global Distribution of Seagrass Meadows." *Environmental Research Letters* 15 (7): 074041. https://doi.org/10.1088/1748-9326/ab7d06.

Worthington, Thomas A., Mark Spalding, Emily Landis, Tania L. Maxwell, Alejandro Navarro, Lindsey S. Smart, and Nicholas J. Murray. 2024. "The Distribution of Global Tidal Marshes from Earth Observation Data." *Global Ecology and Biogeography* 33 (8). https://doi.org/10.1111/geb.13852.