GLOBE_secchi_transparency_saltwater
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GENERAL INFORMATION

GLOBE Secchi Disk Transparency - Salt Water

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Date of data collection: November 3, 1997 to September 26, 2025

Geographic location of data collection: global

SHARING/ACCESS INFORMATION

Links to other publicly accessible locations of the data:
https://vis.globe.gov/GLOBE/
http://datasearch.globe.gov/
http://api.globe.gov/search/swagger-ui.html

DATA & FILE OVERVIEW

File Name:
GLOBE_secchi_transparency_saltwater.csv

Description: This is a curated dataset of NASA GLOBE observations of salt water transparency using a secchi disk. Depth observations are made by lowering a secchi disk into the water until it can no longer be seen, or reaches the bottom. After the disk can no longer be seen, it is lowered a further and then raised until it is visible again. The average of these depths is the final transparency depth (transparency_disk_image_disappearance_m). The GLOBE Secchi Disk protocol at the time of publishing this dataset also required that observers record the distance of the observer above the water surface. This value is included in the total depth to disappearance. Since this is not the method which other secchi disk datasets follow, some confusion about the inclusion of the distance above water value led to inconsistencies in the dataset. As such, we

have published this curated dataset which has been cleaned using the methods described below.

METHODOLOGICAL INFORMATION

Description of methods used for collection/generation of data: Data was obtained from the NASA GLOBE API on September 29, 2025 (8609 salt water measurements). Due to errors in the data entry process, some measurements with issues were removed from this dataset. Some measurements have multiple issues. All data is available through globe.gov.

Cleaning steps taken are as follows:

1. Removed measurements will null depths (n = 1)
2. Removed all measurements with negative depth values. (n = 231)
3. Removed data with distance above water greater than 5m. (n = 703)
4. Removed data with no location info. (n = 0)
5. Removed measurements with distance above water equal to disappearance or reappearance depths (data entry error). (n = 330)

Note: There are 10 measurements with a difference between disappearance and reappearance depths greater than 2 meters. Use discretion when working with these measurements.

SUMMARY STATISTICS

Each unique transparency ID number represents a single observation. Each observation can have up to three measurements associated with it.

Number of observations with 1 measurement: 5077
Number of observations with 2 measurements: 97
Number of observations with 3 measurements: 707

VARIABLES

Number of variables: 55
Number of cases/rows: 7392

Variable List:

latitude
longitude
transparency_id
site_id
userid
usertype
organizationid

measured_at [MM/DD/YYYY 00:00:00 PM]
Date and time of the observation.
transparency_disk_image_disappearance_m [m]
calculated average disappearance depth
((disappearance - distance_to_surface) + (reappearance - distance_to_surface))/2
transparency_disk_does_not_disappear [TRUE/FALSE]
True if disk did not disappear. False if disk did disappear.
sample_number
Number 1 to 3 representing the sample number associated with each transparency_ID.
sample_distance_to_surface_m [m]
Distance from the observer to the surface of the water.
sample_transparency_disk_image_disappearance_m [m]
Distance from the observer to disk when it disappeared. This includes the height recorded in sample_distance_to_surface_m.
sample_transparency_disk_image_reappearance_m [m]
Distance from the observer to disk when it reappeared. This includes the height recorded in sample_distance_to_surface_m.
sample_transparency_disk_does_not_disappear [TRUE/FALSE]
True if disk did not disappear. False if disk did disappear. Same as transparency_disk_does_not_disappear.
comments
water_body_state
Normal; Frozen; Dry; Flooded; Unreachable
created_at [MM/DD/YYYY 00:00:00 PM]
Date and time of the site creation.
updated_at [MM/DD/YYYY 00:00:00 PM]
Date and time that the site information was last updated.
site_activated_at [MM/DD/YYYY 00:00:00 PM]
Date and time that the site was activated.
site_version
site_version_date
water_body_name
User input. Name of water body.
water_body_type
Salt Water; Fresh Water; Brackish; Unknown
water_body_source
Pond; Lake; Reservoir; Bay; Ditch; Ocean; Estuary; River; Stream; Marsh/Swamp; Agriculture; Puddles, Animal or Vehicle Tracks; Other
water_body_bank_to_bank_distance_m [m]
water_body_area_sq_km [KM^2]
water_body_depth_m [m]
water_sample_location
Outlet; Bank; Bridge; Boat; Inlet; Pier
see_bottom_flag [TRUE/FALSE]

True if observer could see the bottom of the water body

bank_material_is_soil [TRUE/FALSE]

bank_material_is_rock [TRUE/FALSE]

bank_material_is_concrete [TRUE/FALSE]

bank_material_is_vegetated_bank [TRUE/FALSE]

bedrock_type_is_granite [TRUE/FALSE]

bedrock_type_is_limestone [TRUE/FALSE]

bedrock_type_is_volcanic [TRUE/FALSE]

bedrock_type_is_mixed_sediments [TRUE/FALSE]

bedrock_type_is_unknown [TRUE/FALSE]

freshwater_habitat_has_rocky_sustrate [TRUE/FALSE]

freshwater_habitat_has_vegitated_banks [TRUE/FALSE]

freshwater_habitat_has_mud_substrate [TRUE/FALSE]

freshwater_habitat_has_sand_substrate [TRUE/FALSE]

freshwater_habitat_has_submerged_vegetation [TRUE/FALSE]

freshwater_habitat_has_logs [TRUE/FALSE]

salt_habitat_has_rocky_shore [TRUE/FALSE]

salt_habitat_has_sandy_shore [TRUE/FALSE]

salt_habitat_has_mud_flats_or_estuary [TRUE/FALSE]

site_comments

old_schoolid

old_siteid

old_versiondate

site_created_at

site_updated_at

depth_difference

Calculated difference between sample disappearance and reappearance depth [m]