

# Package ‘Ts’

May 7, 2026

**Type** Package

**Title** Calculation of the Surface Temperature (Ts) from Geospatial Raster Data

**Version** 1.0.1

**Date** 2026-02-13

**Description** Provides functions to calculate the Surface Temperature (Ts) from geospatial raster data. These functions use albedo, Normalized Difference Vegetation Index (NDVI), and air temperature (Ta) to estimate Ts, facilitating hydrological, ecological, and remote sensing analyses.

**License** GPL-3

**Encoding** UTF-8

**RoxygenNote** 7.3.2

**Imports** stats, terra

**Suggests** testthat (>= 3.0.0)

**NeedsCompilation** no

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calculate_Ts	<i>Calculate the Surface Temperature (Ts)</i>
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### Description

This function calculates the surface temperature (Ts) from three rasters: albedo, NDVI, and air temperature (Ta). The resulting Ts raster will have the same unit as Ta.

### Usage

```
calculate_Ts(albedo, ndvi, Ta, output_path = NULL, verbose = FALSE)
```

### Arguments

albedo	RasterLayer/SpatRaster of albedo values
ndvi	RasterLayer/SpatRaster of NDVI values
Ta	RasterLayer/SpatRaster of air temperature (Ta) in Kelvin
output_path	File path to save the Ts raster (optional)
verbose	Logical; if TRUE, prints information about dry/wet edges, T_min/T_max, and unit info. Default is TRUE.

### Value

SpatRaster of surface temperature (Ts) in the same unit as Ta

### Examples

```
library(terra)

albedo_raster <- rast(system.file("extdata", "albedo_mini.tif", package = "Ts"))
Ta_raster     <- rast(system.file("extdata", "Ta_mini.tif", package = "Ts"))
ndvi_raster   <- rast(system.file("extdata", "ndvi_mini.tif", package = "Ts"))

output_path <- tempfile(fileext = ".tif")

calculate_Ts(
  albedo = albedo_raster,
  Ta     = Ta_raster,
  ndvi  = ndvi_raster,
  output_path = output_path,
  verbose = TRUE
)

print(output_path)
```

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