

TSR Polygon Data – Access Instructions

This document describes how to access the TSR tropical cyclone tracking products in polygon form, including details of file name structure and file format.

The polygon data are available in **beta test** form for all active tropical cyclones worldwide, and retrospectively for hurricanes Wilma (2005) and Dean (2007). These data are accessible from the following URLs:

1. Polygons for Active Tropical Cyclones Worldwide:

http://tsr.mssl.ucl.ac.uk/development_w3c/shadow/tracker/dynamic/list.txt

This URL lists the polygons for the TSR Surface Wind Probabilities to 120 hrs and the TSR Surface Wind History for all active tropical cyclones worldwide.

http://tsr.mssl.ucl.ac.uk/development_w3c/shadow/tracker/dynamic/listv2.txt

This URL lists the polygons for the TSR Advanced Surface Wind History and for the Forecast Wind Swathe to 120 hrs for all active tropical cyclones worldwide. Polygons are provided separately for 1-min sustained winds and for 3-sec peak gusts.

2. Polygons for Hurricane Wilma (2005):

These data are updated every 6 hrs from ~96 hrs before Florida landfall to ~6 hrs after Florida exit. To convert the date/times in the hurricane Wilma file headers to their real-time equivalent simply change '2008' and 'Jan' to '2005' and 'Oct'.

http://tsr.mssl.ucl.ac.uk/development_w3c/shadow/tracker/dynamic/listwilma.txt

This URL lists the polygons for the TSR Surface Wind Probabilities to 120 hrs for hurricane Wilma (2005).

http://tsr.mssl.ucl.ac.uk/development_w3c/shadow/tracker/dynamic/listwilma_v2.txt

This URL lists the polygons for the TSR Advanced Surface Wind History and for the Forecast Wind Swathe to 120 hrs for hurricane Wilma (2005). Polygons are provided separately for 1-min sustained winds and for 3-sec peak gusts.

3. Polygons for Hurricane Dean (2007):

These data are updated every 6 hrs from ~36 hrs before Dean crossed the Lesser Antilles through to Dean's final landfall on the Mexican mainland. To convert the date/times in the hurricane Dean file headers to their real-time equivalent simply change '2008' and 'Feb' to '2007' and 'Aug'.

http://tsr.mssl.ucl.ac.uk/development_w3c/shadow/tracker/dynamic/listdean.txt

This URL lists the polygons for the TSR Surface Wind Probabilities to 120 hrs for hurricane Dean (2007).

http://tsr.mssl.ucl.ac.uk/development_w3c/shadow/tracker/dynamic/listdean_v2.txt

This URL lists the polygons for the TSR Advanced Surface Wind History and for the Forecast Wind Swathe to 120 hrs for hurricane Dean (2007). Polygons are provided separately for 1-min sustained winds and for 3-sec peak gusts.

Format of Polygon Files:

Header Information:

The list of polygon files for each tropical cyclone begins with a header time stamp and a copyright message. For example, "26 Jan, 2008 12:00 UTC TSR 5.0 Beta test version copyright (c) 2007 UCL" means that the storm tracking and forecast information listed below this header was updated at 12:00 UTC on the 26th Jan 2008.

The header is followed by a list of polygon file names. In the "list.txt" URL the first three file names are for the Surface Wind History product. The following files (numbering up to 36) are for the Surface Wind Probabilities to 120 hrs. In the "listv2.txt" URL the first six files are for the Advanced Wind History product. The following six files are for the Forecast Wind Swathe to 120 hrs.

Naming Structure:

The polygon files have the following name structure: "STORMID_FIELD_DATE", where:

"STORMID" is a unique storm identifier which remains fixed throughout the storm's lifetime. The first four numbers are the current year. The following two numbers are the storm number per basin (e.g. 15 for the 15th tropical cyclone to form in that basin that year). The next character defines the basin (N - Atlantic, W - West Pacific, A - Arabian Sea, B - Bay of Bengal, E - East Pacific, C - Central Pacific, P - South Pacific, S - South Indian Ocean).

"FIELD" is the TSR tropical cyclone tracking product in question. For example, 'wind' represents a 1-minute sustained forecast wind field (up to 120 hrs ahead), 'gust' represents 3 second forecast peak gusts (up to 120 hours ahead), and 'windpast' and 'gustpast' describe similar fields but for the advanced wind history.

"DATE" is a 10 digit number. The first four integers represent the current year. The fifth and sixth define the current month with 00 being Jan, 01 Feb, 02 Mar. The seventh and eighth digits define the current day. The ninth and tenth digits define the advisory time in UTC hrs.

Further to this standard naming structure, the polygon files containing the TSR Surface Wind Probabilities are named as follows:

"STORMID_LEAD_STRENGTHprob_DATE.html", where:

LEAD is a number from 0 to 7 which represents the forecast lead time. 0 = 0 hrs (analysis), 1 = 12 hrs, 2 = 24 hrs, 3 = 36 hrs, 4 = 48 hrs, 5 = 72 hrs, 6 = 96 hrs and 7 = 120 hrs lead.

STRENGTH is the wind strength to which the probabilities refer (TS = tropical storm strength 1-min sustained winds, cat1 = hurricane strength 1-min sustained winds).

File Formats:

The polygon information for each FIELD is presented in a sequence of three files. These files are:

1. An html file which displays the polygons over a Virtual Earth map.
2. An Arc/Info file in the ESRI GIS Ungenerate format (.dat format). This contains all the polygon data required to reproduce the data in the .html file.
3. An attribute file for the Arc/Info data file (.dat format). This file includes an additional 'a' in its filename (next to the FIELD name) to denote 'attribute'. It describes what each polygon represents.

To view the files in your browser simply copy and paste the filename into your browser address bar.

In the Arc/Info file each polygon is numbered and is described by a series of vertices. The coordinates of each vertex are defined by a longitude (°E) and latitude (°N) pair. The longitude/latitude pairs are indented on lines following the polygon number. Every polygon is completed by an "END". The final polygon has two "END"s.

In the attribute file Attribute "0" defines the number of types of polygon information (e.g. wind probability and cyclone track counts as two types), the number of polygons, the lead time and the tropical cyclone name. Attribute "1" describes the first type of polygon information. Its lines define the polygon type, the number of vertices in the polygon, the time stamp, and the storm categories or percentage of wind probabilities, etc.

Updates:

The files appearing in the "list.txt" and "listv2.txt" URLs are updated for each live storm every 6 hours in the North Atlantic, Northeast Pacific and Northwest Pacific basins, and every 12 hours elsewhere

Further Information:

For further information on accessing the TSR polygon data please contact the TSR software developer Dr Adam Lea (e-mail: al@mssl.ucl.ac.uk; Tel: +44 (0)1483 204217).

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