Data of Saturn's temperature, zonal wind, and stability based on the Cassini long-term (2004-2017) multi-instrument (CIRS, ISS, and VIMS) observations.

Repository for data presented by Wang et al., 2024 (JGR-Planets). Data were saved in Matlab format (*.mat) and the software Matlab was used to process and analyze the data. Guidelines for using Matlab can be found at https://www.mathworks.com/products/matlab.html. The data have units of planetocentral latitude (degree) and pressure (mbar). The data is briefly introduced as below.

Fig2_panelA_temperature_pressure_latitude.mat
Temperature data in the 2-dimensional domain (pressure and latitude) ("T_pressure_latitude.mat"), which are displayed by panel A of Figure 2. Additionally, latitude ("latitude_centric") and pressure ("pressure") are also saved with this data.

Fig2_panelB_zonal_wind_pressure_latitude.mat
Same as Fig1_panelA_zonal_wind_pressure_latitude.mat except for the data of zonal winds presented in panel B of Figure 2 ("U_pressure_latitude.mat" are saved.

Fig2_panelC_zonal_wind_uncertainty_pressure_latitude.mat
Same as Fig1_panelB_zonal_wind_pressure_latitude.mat except for the corresponding uncertainty of zonal winds displayed in panel C of Figure 2 ("U_uncertainty_pressure_latitude.mat") are saved.

Fig5_panelA_beta_latitude.mat
Meridional profile of beta (af/ay) ("beta_latitude.mat"), which is displayed by panel A of Figure 5, is saved.

Fig5_panelB_beta_y_pressure_latitude.mat
The data of Beta_y in the 2-dimensional domain (pressure and latitude) ("beta_y_pressure_latitude.mat"), which are presented in panel B of Figure 5, are saved.

Fig5_panelC_beta_z_pressure_latitude.mat
Same as Fig5_panelB_beta_y_pressure_latitude.mat except for beta_z ("beta_z_pressure_latitude.mat") is saved.

Fig7_panelA_ISS_CB_zonal_wind_latitude.mat
Zonal winds at different years (2004_09, 2012, 2014), which were measured based on the images recorded by the CB filter of Cassini/ISS, are saved.

Fig7_panelB_ISS_MT_zonal_wind_latitude.mat
Zonal winds at different years (2004_09 and 2014), which were measured based on the images record by the MT fitlers of the Cassini/ISS, are saved.

Fig9_VIMS_5um_zonal_wind_latitude.mat
Zonal winds at different years (2006, 2009, 2011, and 2015), which were measured based on the 5-um images recorded by the Cassini/VIMS, are saved.