Guidance to SWIMMR-t repository

This repository contains files relating to the BAS SWIMMR-T project – PI Gareth Chisham

1. **‘read\_BAS\_convection.pro’**.

**The BAS forecast model of the northern high-latitude ionospheric plasma motion** comprises a set of regression coefficients. The user needs to specify the day-of-year and the monthly mean of the solar radio flux at 10.7 cm/2800 MHz, often called the f10.7 index. They also need to provide the value of the interplanetary magnetic field (IMF) component *By* and the Sun-Earth component of the solar wind velocity *Vx*, both in geocentric solar magnetospheric (GSM) coordinates. The regression coefficients are provided as two files, one can be used to model the north-south (NS) component of the plasma motion and the other to model the east-west (EW) component of the motion. **Use of regression coefficients**. The plasma velocity can be forecast (or hindcast) by reading in these 24 regression coefficients from two ACSII files and using them in Equations 6, and subsequently Equations 5 of Lam et al. (2023). An example of how this is done is given by the IDL programme ‘read\_BAS\_convection.pro’.