

## ICTP – EC COST Action ES0803 – EC FP7 Project SOTERIA - INAF – ESA International Advanced School on Space Weather Modelling and Applications

### Geomagnetism Links and further reading:

Kp from NOAA Space Weather Prediction Center: ([http://www.swpc.noaa.gov/rt\\_plots/kp\\_3d.html](http://www.swpc.noaa.gov/rt_plots/kp_3d.html))  
Kp from GeoForschungs-Zentrum (GFZ), Potsdam ([http://www-app3.gfz-potsdam.de/kp\\_index/index.html](http://www-app3.gfz-potsdam.de/kp_index/index.html))  
AE, Dst indices from WDC-C2 in Kyoto: <http://wdc.kugi.kyoto-u.ac.jp/dstdir/index.html>.  
Real-time AE index values on-line: [http://wdc.kugi.kyoto-u.ac.jp/ae\\_realtime/today/today.html](http://wdc.kugi.kyoto-u.ac.jp/ae_realtime/today/today.html)  
Real-time Dst values on-line: [http://wdc.kugi.kyoto-u.ac.jp/dst\\_realtime/presentmonth/index.html](http://wdc.kugi.kyoto-u.ac.jp/dst_realtime/presentmonth/index.html) .  
ACE satellite data: <http://www.srl.caltech.edu/ACE/>  
Improved Dst formula: [http://sprg.ssl.berkeley.edu/dst\\_index/images/cumulative.gif](http://sprg.ssl.berkeley.edu/dst_index/images/cumulative.gif) .  
PCS recent values: [http://www.aari.nw.ru/clgmi/geophys/pc\\_main.htm](http://www.aari.nw.ru/clgmi/geophys/pc_main.htm)  
PCN current monthly data: <http://wdcc1.dmi.dk/pcnu/pcnmdplot.html>  
PCN daily data: <http://wdcc1.dmi.dk/pcnu/pcn2dplot.html>  
ESA SWENET project, GIFINT: <http://gifint.ifs.rm.cnr.it/>.  
General Space Weather data: <http://swpc.noaa.gov/today.html>

### Magnetic data links

International Monitor for Auroral Geomagnetic Effects (IMAGE): <http://www.ava.fmi.fi/image/data.html>  
Nordic magnetometer data at Tromsø Geophysical Observatory (TGO): <http://geo.phys.uit.no>  
Realtime data: <http://flux.phys.uit.no/geomag.html>, <http://flux.phys.uit.no/stackplot/>  
Russian magnetometer data: [http://www.aari.nw.ru/clgmi/geophys/mag\\_main.htm](http://www.aari.nw.ru/clgmi/geophys/mag_main.htm)  
210° Magnetic Meridian real-time data: <http://magdas.serc.kyushu-u.ac.jp/qdata/index.php>  
Geophysical Institute Magnetometer Array (GIMA): <http://magnet.asf.alaska.edu>  
Magnetometer Array for Cusp and Cleft Studies (MACCS), Realtime dataplots:  
<http://space.augsburg.edu/space/MaccsHome.html>  
Boulder Magnetometer realtime: [http://www.swpc.noaa.gov/rt\\_plots/bou\\_12h.html](http://www.swpc.noaa.gov/rt_plots/bou_12h.html)  
Time History of Events and Macroscale Interactions During Substorms (THEMIS):  
<http://themis.ssl.berkeley.edu>  
Canadian Magnetic Observatory System (CANMOS) data: [http://gsc.nrcan.gc.ca/geomag/data/index\\_e.php](http://gsc.nrcan.gc.ca/geomag/data/index_e.php)  
Realtime data: [http://geomag.nrcan.gc.ca/common\\_apps/auto\\_generated\\_products/stackplot\\_e.png](http://geomag.nrcan.gc.ca/common_apps/auto_generated_products/stackplot_e.png)  
SuperMAG: <http://supermag.jhuapl.edu/index.html>  
SuperMAG data base: <http://supermag.jhuapl.edu/inventory/index.html>

### Ionosphere Links and further reading:

General info on ionosphere: <http://www.swpc.noaa.gov/info/Iono.pdf>  
General info on radiowave propagation: <http://www.swpc.noaa.gov/info/Radio.pdf>

### Links to more information on Ionosondes and Digisondes:

How do you read the Digisonde Ionogram Plots: <http://home.swbell.net/pjdyer/esiongrm.htm>  
Variables Explained - brief description of FoEs, FxEs, h'Es, etc.: <http://ulcar.uml.edu/%7Eiag/CHARS.htm>  
NOAA NGDC Overview of Vertical Sounding: <http://www.ngdc.noaa.gov/stp/IONO/ionogram.html>  
Basic Ionosonde Theory: [http://www.wdc.rl.ac.uk/ionosondes/ionosonde\\_basics.html](http://www.wdc.rl.ac.uk/ionosondes/ionosonde_basics.html)

Background to Ionospheric Sounding: <http://ulcar.uml.edu/DPS.htm>

Case Study of an Ionosonde Movie: <http://www.wdc.rl.ac.uk/ionosondes/contents.html>

**Online Ionosonde and Digisonde real-time data :**

North America

HAARP - Gakona, AK: <http://137.229.36.56/>

HAARP latest ionogram : <http://137.229.36.56/latestFrames.htm>

College, AK: [ftp://solar.sec.noaa.gov/pub/lists/iono\\_day/College\\_iono.txt](ftp://solar.sec.noaa.gov/pub/lists/iono_day/College_iono.txt)

Haystack, MA: <http://digisonde.haystack.edu/>

Ionosonde, Tromsø Geophysical Observatory (TGO): <http://geo.phys.uit.no/ionosonde/>

Italy - Rome : <http://dps-roma.ingrm.it/>

United Kingdom - Fairford AFB [ftp://solar.sec.noaa.gov/pub/lists/iono\\_day/Fairford\\_iono.txt](ftp://solar.sec.noaa.gov/pub/lists/iono_day/Fairford_iono.txt)

**TEC and Scintillations:**

Real-time on-line TEC: [http://iono.jpl.nasa.gov/latest\\_rti\\_global.html](http://iono.jpl.nasa.gov/latest_rti_global.html)

Northwest Research Associates (Nwra): [http://www.nwra.com/ionoscint/sp\\_intro.html](http://www.nwra.com/ionoscint/sp_intro.html)

Scintillation levels at solar max: [http://www.nwra.com/ionoscint/sp\\_solmax.html](http://www.nwra.com/ionoscint/sp_solmax.html)

Nwra real-time data: [http://www.nwra.com/ionoscint/sp\\_rtdata.html](http://www.nwra.com/ionoscint/sp_rtdata.html)

**Riometer information and data:**

Description: <http://www.haarp.alaska.edu/haarp/data.html>

Riometer system: <http://www.lajollasciences.com>

Global riometer locations and data: <http://www.dcs.lancs.ac.uk/iono/gloria>

On-line riometer data : [http://137.229.36.30/cgi-bin/riometer/riom2\\_sel.cgi](http://137.229.36.30/cgi-bin/riometer/riom2_sel.cgi)

Imaging riometer: <http://www.dcs.lancs.ac.uk/iono/iris>

On-line riometer data: <http://www.dcs.lancs.ac.uk/iono/cgi-bin/summary#plots>

**SuperDARN information and data:**

SuperDARN Network at Johns Hopkins Applied Physics Laboratory <http://superdarn.jhuapl.edu/>

SuperDARN at the University of Alaska Geophysical Institute : <http://superdarn.gi.alaska.edu>

SuperDARN at Virginia Tech: <http://sd-software.ece.vt.edu/tiki/tiki-index.php>

UK SuperDARN: <http://ion.le.ac.uk/cutlass/superdarn.html>

Super Dual Auroral Radar Network (SuperDARN) real-time data (need registration and password):

Data: <http://superdarn.jhuapl.edu/archive/cnvmap.north.html>