

SPACE WEATHER PRODUCT PORTAL

Candidate Training Material

(Submitted by Xiaoxin Zhang)

Summary and Purpose of Document

The appendix to this document contains a list of selected training materials, organized by topics, which are proposed for inclusion into the new Space Weather Product Portal, as discussed at ICTSW-3 (Action 3.13).

- *Prepared by Dan Du, Jianguang Guo, Xiaoxin Zhang in CMA*
-

ACTION PROPOSED

The Inter-Programme Coordination Team is invited to discuss the candidate training material, seek the team's endorsement of the structure and the contents of the portal, and make recommendations for further revision and expending candidates of training materials.

APPENDIX Proposed training material for inclusion into the portal

PROPOSED TRAINING MATERIAL FOR INCLUSION INTO THE PORTAL

The portal should provide general readers and professional users with appropriate training and outreach materials to understand space weather focused on the following questions: What is space weather? How do people know space weather? How is space weather related to traditional weather? How is space weather different from weather? Why is space weather important? Candidate training materials are provided with different topic levels in the appendix. The ICTSW must be discussed that, before posting training materials, the ICTSW team should clarify what type of material to be posted, and finalize the definition of the structure and contents. (The target, structure and contents of training portal will be discussed in the document of ‘**Training and Outreach matters**’)

Appendix: Proposed training material for inclusion into the portal

Candidate list for Space Weather training material

Topic	Sub Topic	Description (incl. Source)	Link
Comprehensive Introduction	Primer	“A Primer on Space Weather” written by SWPC/NOAA	http://www.swpc.noaa.gov/primer/primer.html
Comprehensive Introduction	Overview	“Space Weather Basics, 2nd Edition” Training Module developed by COMET which presents an overview of space weather processes, their impacts on Earth and human activities, and the technologies used for forecasting space weather events.	https://www.meted.ucar.edu/training_module.php?id=901
Comprehensive Introduction	Background Information	The lessons and activities provided by NOAA education resources link the physical science concepts of the electromagnetic spectrum, Earth-Sun relationships, and energy to the engaging topic of space weather.	http://www.education.noaa.gov/Weather_and_Atmosphere/Space_Weather.html
Comprehensive Introduction	Knowledge and Games	Space Weather Center is a site designed for educators and students to learn more about our dynamic Sun and space weather and how these topics can be used in the classroom and outreach events.	http://www.spaceweathercenter.org/
Comprehensive Introduction	Vodcast	“Space Weather FX” vodcast series developed by MIT Haystack Observatory. The team of scientists and video producers are exploring what happens when the Sun stirs up	http://www.haystack.mit.edu/edu/poa/s_wfx/index.html

		a little space weather.	
Comprehensive Introduction	Reference Books	“Reference Books for Solar Terrestrial Science” at IPS	http://www.ips.gov.au/Educational/1/2/2
Special Introduction	The Sun and Solar Activity	Brief introduction at IPS	http://www.ips.gov.au/Educational/2/1
Special Introduction	Solar Wind	Brief introduction at NASA	http://solarscience.msfc.nasa.gov/SolarWind.shtml
Special Introduction	Magnetosphere	An educational web site developed by David P. Stern and Mauricio Peredo. This web page provides an overview of space research on the Earth's environment in space.	http://www-spof.gsfc.nasa.gov/Education/Intro.html
Special Introduction	Ionosphere	Short Reference Papers at SWPC/NOAA	http://www.swpc.noaa.gov/info/Iono.pdf
Special Introduction	Ionosphere	Tutorial on the ionosphere from ROB	http://gnss.be/ionosphere_tutorial.php
Special Introduction	Geomagnetic Activity	Brief introduction at IPS	http://www.ips.gov.au/Educational/3/1
Impact on Human Activities	Overview	This website offers an overview of the effects of Sun interacting with different human activities. Specially, this website contains a brief paragraph of the main effects of each solar storm, and a link to an archive of articles written about each storm that you can find in a variety of newspapers and magazines during the time of the storm.	http://www.solarstorms.org/
Impact on Human Activities	Radio Communication	“Space Weather and Radio Communications” at IPS	http://www.ips.gov.au/Educational/1/2/5
Impact on Human Activities	Radio Communication	Radio Communication at IPS	http://www.ips.gov.au/Educational/5/2
Impact on Human Activities	Satellites	“Satellites and Space Weather” from SWPC/NOAA	http://www.swpc.noaa.gov/info/Satellites.html
Impact on Human Activities	Aurora	“Relationship between Kp and the Aurora” from SWPC/NOAA	http://www.swpc.noaa.gov/info/kp-aurora.html
Impact on Human Activities	General Aviation	Space scientist Joe Kunches from the NOAA Space Weather Prediction Center discusses solar activity and how this space weather may impact general aviation flying.	http://www.aopa.org/AOPA-Live.aspx?watch=xpcThzNDpBAIUrzVhf1zrXDAaV_cu54
Space Weather Scales		The NOAA Space Weather Scales were introduced as a way to communicate to the general public the current and future space weather conditions and their possible	http://www.swpc.noaa.gov/NOAAscales/index.html

		effects on people and systems. These scales will be useful to users of our products and those who are interested in space weather effects.	
Space Weather Scales		Classifications at SIDC	http://sidc.oma.be/educational/classification.php#XClass
Space Weather Glossary		“Glossary of Solar-Terrestrial Terms” at SWPC/NOAA	http://www.swpc.noaa.gov/info/glossary.html
Space Weather Glossary		“Glossary of Solar Terrestrial Terms” at IPS	http://www.ips.gov.au/Educational/1/2/1
Space Weather Glossary		“The K-index” at SWPC/NOAA	http://www.swpc.noaa.gov/info/Kindex.html
Space Weather Events		Extreme space weather events experienced by GOES at National Geophysical Data Center	http://sxi.ngdc.noaa.gov/sxi_greatest.html .
Observation	Solar Observatory	Solar Observatory website from the institute of astronomy on Hawaii	http://kopiko.ifa.hawaii.edu/
Forecasting		Space weather “FORECASTING GUIDE” at SIDC	http://sidc.oma.be/educational/ForGuide.php
Reading Products		User Guide for NOAA's "Preliminary Report and Forecast of Solar Geophysical Data (The Weekly)".	http://www.swpc.noaa.gov/weekly/Usr_guide.pdf
Analysis Tool		Substorm Zoo is developed by Substorms Unlimited Oy. Substorm Zoo provides a browser-based tool for the on-line analysis of time-series.	https://www.substormzoo.org/index.html