

**Short course on
'Space Weather and its Effects'
18–20 Dec 2012; SUPARCO HQs, Karachi, Pakistan**

Introduction

Sun is the closest star to the earth. Its energies influence all objects in the solar system and allow life to exist on our planet. Earth, its atmosphere and magnetic field are affected by the solar radiation. The sun provides most of the initial energy driving space weather which includes the solar winds, magnetosphere and radiation belts, the ionosphere and the upper and lower atmospheres of earth.

Space Weather

In this course the basic subjects of ionosphere, geomagnetism and Sun-Earth connection will be covered, specific emphasis will be given on the physics underneath, the radio wave propagation and its impairment, the solar activity and its impact, occurrence of geomagnetic storms as well as its variability including related satellite applications. Both the geomagnetism and ionosphere under the influence of solar activity form the space weather. SUPARCO's experts would be discussing the various effects of adverse space weather on different systems.

Applications

The Sun-Earth connection constitutes space weather which refers to the dynamic condition of the interplanetary, geospace and planetary environments. The experts in their lectures will be discussing on the areas including monitoring of the solar flare, magnetic storms and ionospheric disturbances and their effects on communication systems, operation of space based equipment & high frequency direction finders, surveillance systems, navigation and rescue operations. Societal impacts of space weather may be observed in the forms of interruptions in satellite operations and communications, geophysical explorations, electric power grids, and pipeline operations.

The space weather services being rendered by SUPARCO will also be included in this training program.

Objectives

The objectives of this workshop are:

- To impart knowledge about the solar phenomena that result in variations in the ionosphere & the geomagnetic field

- To create better understanding of space weather impacts on communication systems.
- To create awareness among professionals for the mitigation of adverse space weather effects

Course Contents

The following topics will be covered during the course:

- Introduction to Space Weather
- Geomagnetic Storms and Geomagnetism
- The Earth's Ionosphere
- Space Weather Effects
- Monitoring of Geomagnetic Field Variation
- Monitoring Techniques of the Ionosphere
- Space Weather services of SUPARCO
- Calculation of MUF/FOT
- GNSS and Space Weather
- Field Experience / Visits of facilities

Dates and Venue

The short training course is scheduled from 18 – 20 Dec 2012 at SUAPRCO HQs, SUPARCO Road, Karachi, Pakistan

Participation and attendance

Educationists, research students, engineers/scientists, system managers and policy/decision makers working in the field of communication, aviation, navigation etc.

Language of the Training course

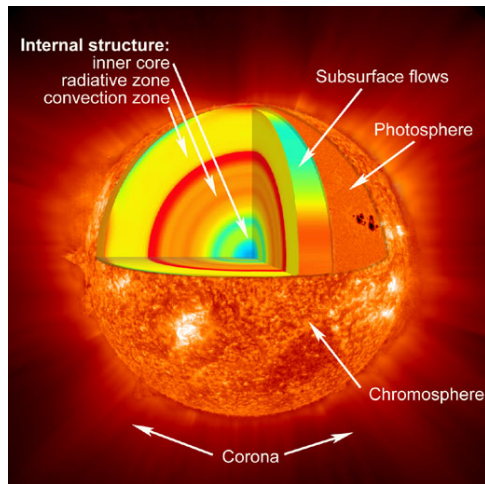
The course language will be English.

Registration

Latest by	30 Nov 2012
Fee	PKR 10,000
Mode of payment	Payorder / bank draft in the name of SUPARCO

Introduction

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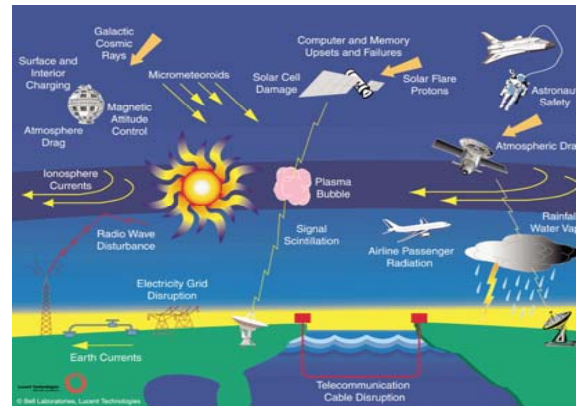


Space Weather

In this course the fundamental subjects of ionosphere, geomagnetism and Sun-Earth connection will be addressed, particularly those concerning the ionosphere, the physics underneath, the radio propagation and prediction, the solar activity, geomagnetic storms as well as its variability and satellite applications. SUPARCO's experts would be discussing the various effects of adverse Space Weather on different systems. The Space Weather services provided by SUPARCO will also be discussed in the course.

Applications

The Sun-Earth connection constitutes space weather which refers to the variable conditions of the interplanetary, geospace and planetary environments. Societal impacts can take many forms such as satellite operations, communications, navigation, geophysical explorations. The research areas of subject include monitoring the solar flare, magnetic storms and ionospheric disturbances. These may affect the communication system, operation of space based equipment & high frequency direction finders, navigation and rescue operations.



Course Content

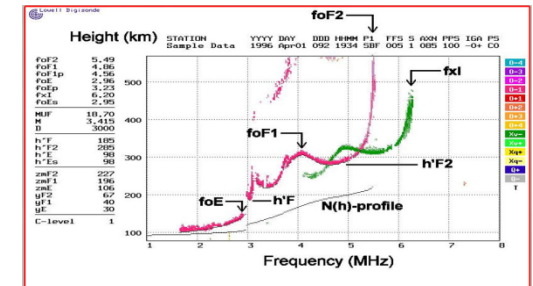
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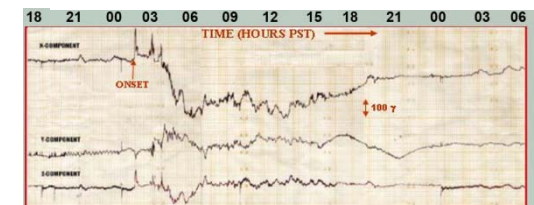
- Monitoring Techniques of the Ionosphere
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A digital ionogram, showing ionospheric critical frequencies and virtual height values



A magnetogram recorded at the time of a geomagnetic storm

Training Course on Space Weather and its Effect

18 – 20 Dec 2012

Course Duration

3 days
18 – 20 Dec 2012

Training Course on SPACE WEATHER AND ITS EFFECTS

18 – 20 Dec 2012

Full Name: _____

Post/Designation: _____

Highest Qualification: _____

Field of Work: _____

Organization's Name: _____

Postal Address: _____

City: _____

Postal Codes: _____

CNIC #: _____

Contact #: _____

Fax #: _____

Email: _____

Applicant's Signature: _____

Venue

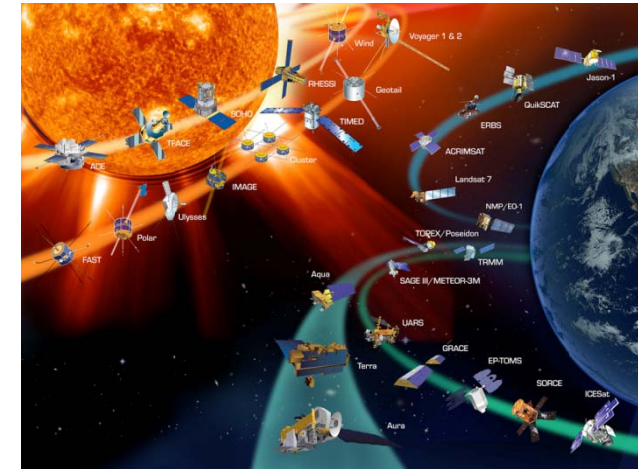
NCRG Building, SUPARCO HQs,
Karachi, Pakistan

Application Deadline

15 Nov 2012

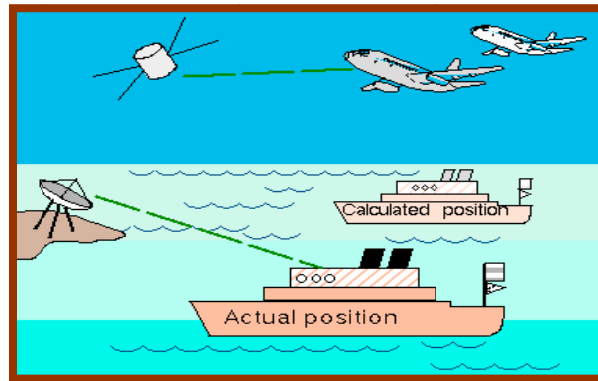
Who Should Attend

Educationists, research students,
engineers/scientists, system managers and
policy makers working in the field of Radio
Communication



Mailing Address

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Email: ayazamin@yahoo.com



The fee per participant is Rs. 10, 000/-

PAKISTAN SPACE & UPPER ATMOSPHERE RESEARCH COMMISSION