

Asia Oceania Space Weather Alliance Online Conference 2020

HELLO!

I am Madeha Talha

I am here to represent Pakistan.

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Space Weather Activities in Pakistan & COVID-19

“Science knows no country because knowledge belongs to humanity, and it is a torch which illuminates the world”

Space Weather Monitoring

We are working in three major domains

01

Ionospheric research

Using ionosondes, SIDs,
TEC/Scintillation receivers

02

Study of geomagnetic field variations

Using magnetometers and absolute measurements

03

Solar atmosphere monitoring

Using CALLISTO, Web-based data of ACE,
SOHO, GOES, SDO, STEREO etc

Timeline

1970s

Installation of
British Ionosondes

1983

Installation of
Canadian
Magnetometer

1987

Installation of
Digisonde 256

1990s

Ionospheric
monitoring at 3
locations

2008

- Installation of DPS-4
- Establishment of 2nd
Geomagnetic Observatory

2012

The 1st OIC
Workshop

2013

Installation of 2
SIDs donated by
ISWI

2014/15

Installation of 2
CALLISTO and
GNSS
TEC/Scintillations
Receivers

2016

Procurement of 2
DI Flux
Magnetometers

2017

Real-time
connectivity and
establishment of
PSWC

2018

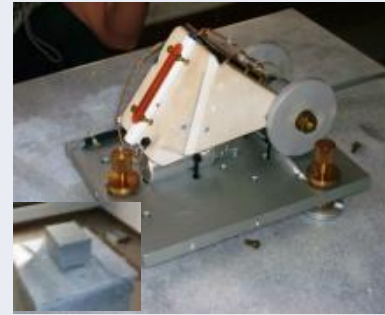
The 2nd OIC
Workshop

Way to become
RWC

Countrywide Available Infrastructure



Countrywide Available Infrastructure

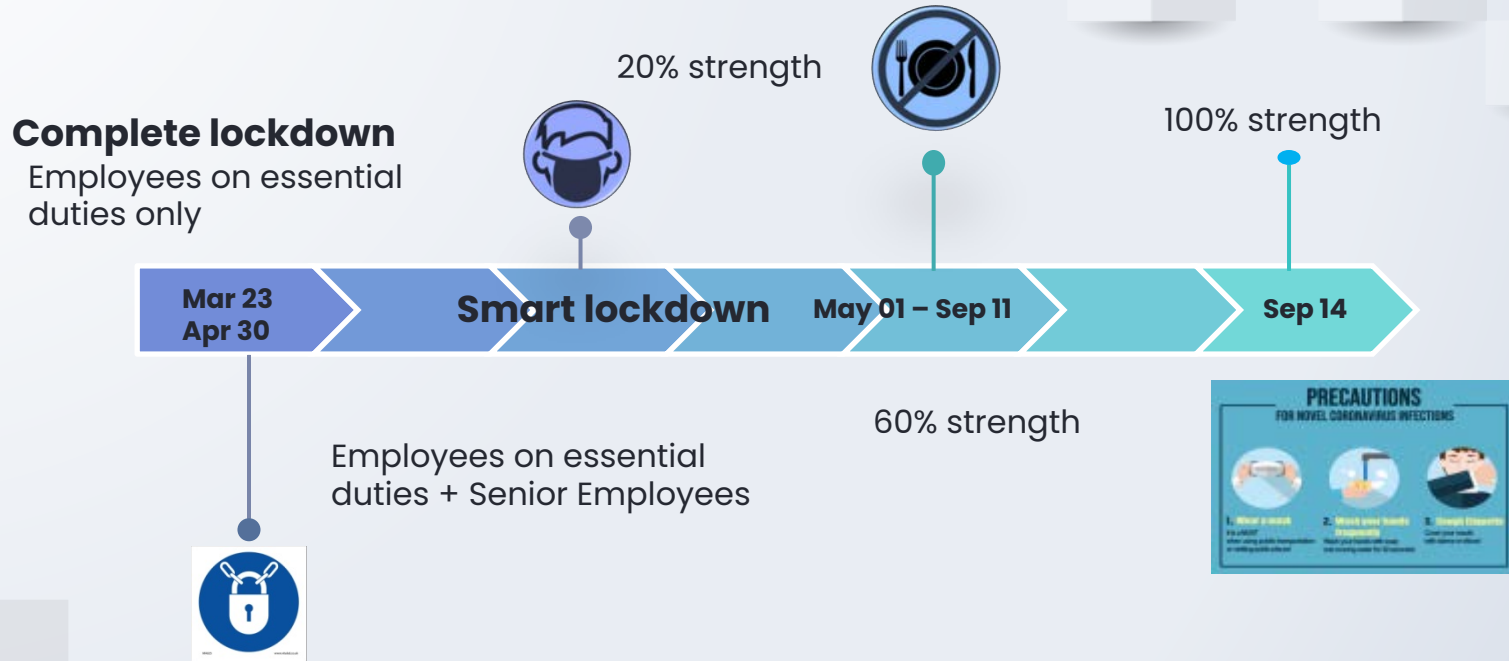


**Geomagnetic Field
Monitoring**


Space Weather Activities during COVID-19

“Bad times have a scientific value. These are occasions a good learner would not miss”


Our Strategy during COVID-19



Issues during COVID-19




One of the four masts of receiving antenna collapsed due to detachment of sling




Received newly procured magnetometer



Long gaps in absolute geomagnetic field measurements

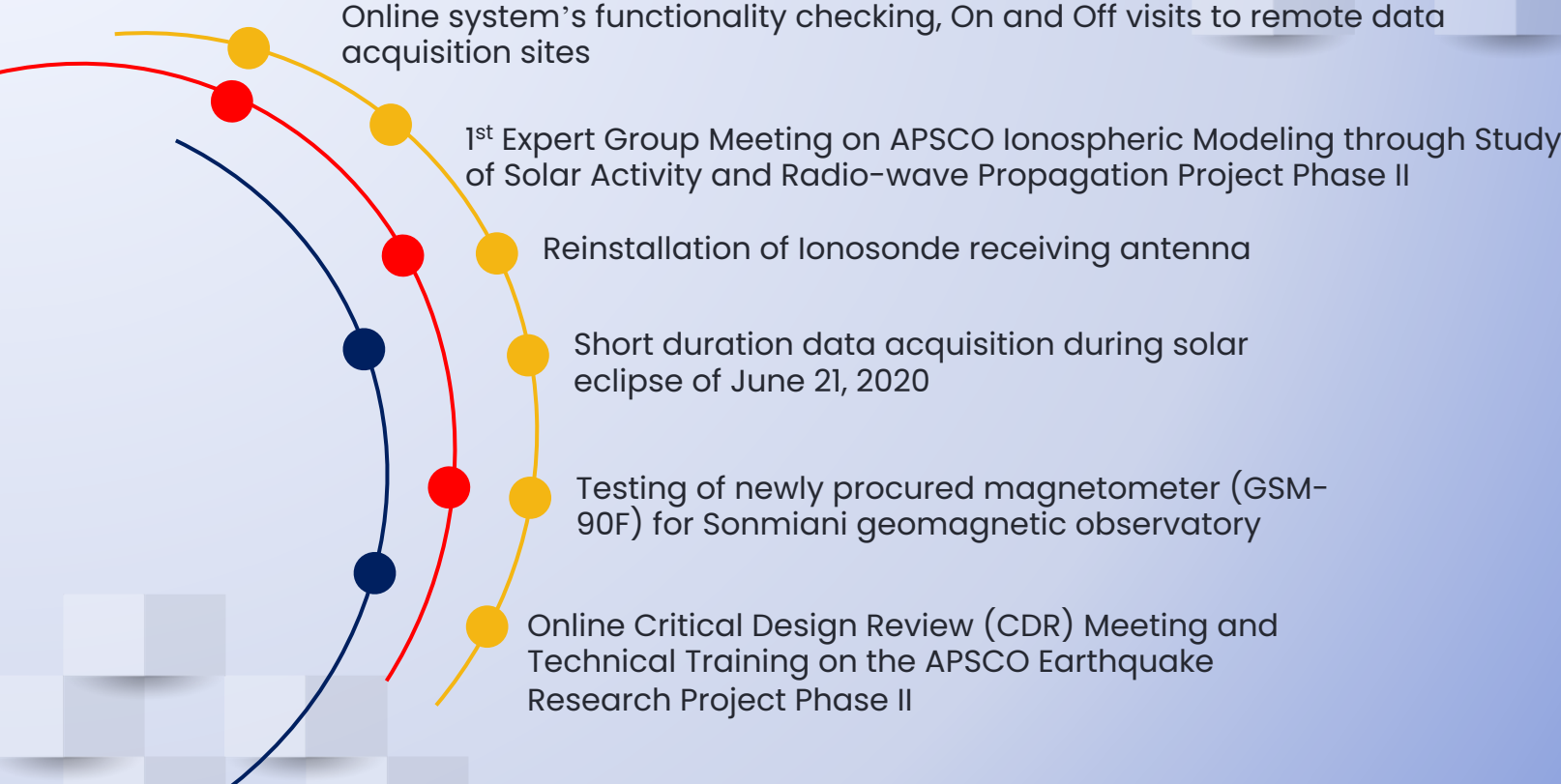


Postponement 3rd International Workshop on Geomagnetism and Ionosphere



Data acquired for annular solar eclipse of June 21

Activities during COVID-19



Online system's functionality checking, On and Off visits to remote data acquisition sites

1st Expert Group Meeting on APSCO Ionospheric Modeling through Study of Solar Activity and Radio-wave Propagation Project Phase II

Reinstallation of Ionosonde receiving antenna

Short duration data acquisition during solar eclipse of June 21, 2020

Testing of newly procured magnetometer (GSM-90F) for Sonmiani geomagnetic observatory

Online Critical Design Review (CDR) Meeting and Technical Training on the APSCO Earthquake Research Project Phase II

[illegible]

77

Activities in Pandemic



Reinstallation of antenna mast



Testing of magnetometer GSM 90F

Publications during COVID-19

Hist. Geo Space Sci., 11, 123–133, 2020

<https://doi.org/10.5194/hgss-11-123-2020>

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History of
Geo- and Space
Sciences

Evolution of the Pakistan Space Weather Centre (PSWC)

Afnan Tahir, Muhammad Ayyaz Ameen, Madeeha Talha, Ghulam Murtaza, Muneeza Salman Ali, and Gohar Ali

Pakistan Space and Upper Atmosphere Research Commission (SUPARCO), Karachi, Pakistan


Lesson Learned

- **Handling of difficult situations during pandemic with limited resources. This includes availability of human resource at remote data acquisition sites**
- **Redundant power supply at remote sites in order to avoid data losses**

Steps for Future

- **Availability of maximum resources at remote data acquisition sites**
- **Utilization of solar power for low power equipment**
- **Develop skilled human resource with the help of regional collaboration**

Support from AOSWA



**Assistance in operationalization of
DPS-4**

**Installation of new Ionosonde under
mutual cooperation**

Technical support in establishing solar observatory

Trainings in the field of Space Weather



THANKS!

Any questions?

You can contact us on:

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