**Effects Solar Storms(SS) ,Coronal Mass Ejection(CME) And Solar Ejection Particles(SEP) on Earth’s atmosphere and on Modern Technical Systems**

**Datasets:**

1. **Major:**

1. Earth’s Magnetic Field (Kyoto Research): [Geomagnetic Equatorial Dst index Home Page](https://wdc.kugi.kyoto-u.ac.jp/dstdir/)

2. Michelson doppler imager: [Michelson Doppler Imager](http://soi.stanford.edu/)

3. Stanford Solar Observations: [Stanford Solar Observatories Group](http://sun.stanford.edu/)

4. SOHO imager: [SDO/HMI](http://hmi.stanford.edu/)

5. SOHO spectrometric coronagraph: [SoHO/LASCO](https://lasco-www.nrl.navy.mil/)

1. **Minor:**

1. Solar Flares latitude positioning: [of /stp/space-weather/solar-data/solar-features/solar-flares/index](https://www.ngdc.noaa.gov/stp/space-weather/solar-data/solar-features/solar-flares/index/)

2. Health Care (WHO): [GHO | By theme](https://apps.who.int/gho/data/node.home)

3. Earth Data (NASA): [Earthdata](https://www.earthdata.nasa.gov/)

**References:**

1. Extreme Solar Eruptions and their Space Weather Consequences by Nat Gopalaswamy [NASA Goddard Space Flight Center, Greenbelt, MD 20771, USA]: <https://doi.org/10.48550/arXiv.1709.03165>

**Case Studies to be done** (in decreasing order of importance):

1. CME
2. Sunspots
3. Solar Magnetic Activity
4. Quiescent filament regions
5. Corotating interaction regions

**Model’s to be trained:**

1. **Main Models:**
2. Solar Storm Magnitude and Earth’s atmosphere [Ionosphere and Ozone layer].
3. Ionospheric Conductivity and Radio/EM waves corresponding to Technical Devices.
4. **Supporting Models:**
5. CME speed and [ Sunspots + Solar Magnetic Field ].
6. CME speed and Earth’s Magnetic field.

**Possible Features:**

1. Corona of the Sun
2. Corotating interaction region