

# ARTIFICIAL INTELLIGENCE

## Natural Disasters Intensity Analysis & Classification Using AI

|              |                                                               |
|--------------|---------------------------------------------------------------|
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| Team Id      | PNT2022TMID4950187                                            |
| Project Name | Natural Disaster Intensity Analysis & Classification Using AI |

## CYCLONE

| Data Sources | Variables/Model                              | Units                              | Temporal Coverage       | Spatial Coverage      | Levels         |
|--------------|----------------------------------------------|------------------------------------|-------------------------|-----------------------|----------------|
| NCEP/NCAR    | geopotential height                          | m                                  | 4-times daily and daily | 2.5 x 2.5 degree grid | multiple level |
|              | precipitable water                           | kg m <sup>-2</sup>                 | 4-times daily           | "                     | surface        |
|              | relative humidity                            | %                                  | "                       | "                     | "              |
|              | sea surface pressure (SLP)                   | hPa                                | "                       | "                     | "              |
|              | u and v wind components                      | m s <sup>-1</sup>                  | "                       | "                     | "              |
|              | air temperature                              | °C                                 | "                       | "                     | "              |
|              | relative vorticity                           | 10 <sup>-5</sup> s <sup>-1</sup>   | "                       | "                     | "              |
|              | moisture convergence*                        | g kg <sup>-1</sup> s <sup>-1</sup> | hourly                  | "                     | "              |
| ECMWF        | Convective Available Potential Energy (CAPE) | J kg <sup>-1</sup>                 | "                       | 0.5x0.5 degree grid   | "              |
|              | total of precipitation                       | mm                                 | "                       | "                     | "              |
| APHRODITE    | total of precipitation                       | mm                                 | daily                   | 0.25x0.25-degree grid | "              |
| NOAA ARL     | HYSPLIT backward trajectory                  | AGL                                | hourly                  | 360 x 180 at 1 degree | multiple level |

\*Moisture convergence was computed with GrADS software using 7 variables: relative humidity, air temperature, vapour pressure mixing ratio, u and v wind components and dew point temperature.

# EARTH QUAKE

|                                           |     |       |       |      |      |
|-------------------------------------------|-----|-------|-------|------|------|
| EQ01 Northridge – 1994 <sup>a</sup>       | 6.7 | 17.40 | 9.71  | 2.91 | 2.22 |
| EQ02 El Centro – 1940 <sup>a</sup>        | 6.9 | 2.14  | 3.49  | 2.37 | 1.47 |
| EQ03 Kobe – 1995                          | 6.9 | 8.21  | 5.99  | 1.47 | 1.42 |
| EQ04 Loma Prieta – 1989 <sup>a</sup>      | 6.9 | 3.52  | 2.67  | 1.37 | 1.47 |
| EQ05 Christchurch – 2010 <sup>a</sup>     | 7.0 | 7.38  | 6.64  | 0.76 | 0.71 |
| EQ06 Miyagi Ken-Oki – 2003 <sup>b</sup>   | 7.1 | 8.25  | 11.10 | 7.89 | 6.96 |
| EQ07 Chi-Chi – 1999 <sup>a</sup>          | 7.7 | 2.92  | 4.34  | 3.66 | 1.61 |
| EQ08 Gorkha – 2015 <sup>a</sup>           | 7.8 | 1.54  | 1.60  | 0.22 | 0.22 |
| EQ09 Chile Coquimbo – 2015 <sup>a</sup>   | 8.3 | 6.77  | 5.45  | 5.70 | 8.73 |
| EQ10 Great East Japan – 2011 <sup>b</sup> | 9.0 | 12.20 | 25.90 | 5.08 | 6.01 |