IITB – ISRO – AICTE Mapathon 2020

Title – Impact of 2001 Gujarat Earthquake

Aishwarya V

Gayathrri K

Map Description

The QGIS 3.10 software was used to create the earthquake impact analysis map. The district wise map of Gujarat, India was downloaded from DIVA GIS website. The epicenter of 2001 earthquake in Gujarat was found to be at Kutch district which has been added to the QGIS as a point layer using Add Delimited Layer tool. It has then reprojected to EPSG:32642 – WGS84 / UTM Zone 42N. The centroids for each of the district were found using the Vector Geometry tools. The buffer layers were created using the Vector Geoprocessing tools for buffer distance of 250km, 325km and 500km. Using the Vector Analysis tool, the distance matrix was formed and resulting distance between the epicenter and the centroids of each district were found. Using Join tool, the distance matrix was linked with the attribute table of the Gujarat districts. Based on the distances, the districts were ranked as follows:

- Less than 250km – Rank 1
- Between 250-325km – Rank 2
- Between 325-250km – Rank 3

Using the New Print Layout tool, the final map containing the districts with severe, moderate and low impact of earthquake was created.

This final map can used for post-earthquake analysis. It provides us with the information about the area of Gujarat falling under higher risk of earthquake and hence necessary relief measures can be taken. Seismic vulnerability and high susceptibility areas can be identified. The relief centers hence can be set up and also awareness among the public can be created to deal with high impact earthquakes. This will be also helpful for designing of structures falling under seismic zones.