

Electronic Documentation Form

1. Report Title and Type: CLOUD MOTION VECTOR (CMV) AND CHANGE DETERMINATION OVER THE FOOTHILLS OF BHUTAN FROM REMOTELY SENSED IMAGES, Thesis.
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4. Field of Study : Remote Sensing and GIS
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6. Expert Comments on the Work and Facility for the Feedback from the Users:
 1. Development of an algorithm, which automatically detects the same target cloud in the next image.
 2. Cloud movement is non rigid so for accuracy higher resolution images and less time gap between them is needed.
 3. Developing a model by seeing the trends in the point movement.
 4. Compilation of all the scripts and making it into a software to make it user friendly.
7. Abstract of the Work

Clouds are one of the main weather phenomenon which determine the over all weather condition of a location. The cloud coverage and the path it travels have great implications on the climate of a place. For that reason cloud tracking, which is the determination of cloud speed and direction has been one of the most important parts in forecasting weather conditions in a particular location.

The method of determining the cloud vectors is based on the calculation of the area and centroids of the target clouds and then plotting these points on the image for a series of cloud images of one-hour duration. Geostationary Meteorological Satellite (GMS 5) is used mostly for cloud tracking in the following method.

The target cloud centroid points of the first image are compared with the image after one hour. The identification of the cloud points in the second image is done

by the triangulation method of the point in respective images. With the identification of the cloud points in the next image the distance and the angle between them were calculated and added to the attribute table of the image. The angles are being calculated for the selected points in the image and then vectors plotted on the image against respective cloud direction angles. The distance and angles were calculated for only selected points in the view between two themes with one-hour interval.

The study was done to determine the cloud motion vectors towards Bhutan in May 2004 to December and develop a way to determine the vectors.

8. Keywords:

- Motion vector
- Centroid determination
- Cloud temperature
- Wind speed and direction
- Satellite images.

9. Bibliographic data

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