Approaches for Tracking Clouds from Geostationary Satellite Images: A Literature Survey

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Authors:
Chitra Merin Varghese, Sreekumar K.

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Abstract

Rainfall and solar irradiance are the two important factors determining the agricultural productivity, availability of drinking water and weather conditions of a region. Rainfall predictions are important to understand manage the utilization of water, as the saying “without rain nothing grows”. A sudden storm or a cyclone can cause severe damages to crops and can endanger life of people. For people relying on fishing in the seas as a living hood an unpredicted cyclone or storm can be life threatening. The above mentioned natural phenomena are all predictable by analyzing the clouds in the regions atmosphere. The study of clouds, where they occur and their characteristics, play a key role in understanding of climatic changes. We have a number of geostationary satellites like KALPANA, INSAT etc, orbiting around the earth surface to monitor the Atmospheric Motion Vectors (AMV’s) and the optical flow of clouds. Cloud analysis using image processing techniques on satellite images is widely used to predict rainfall availability, cyclone, storm etc. Unlike traditional prediction methods that includes consideration of other climatic factors such as temperature, pressure, humidity etc which involves heavy calculations and speculations, cloud data analysis make the whole process simple and automated. This
paper is a survey of different techniques that are deployed over satellite images in order to
detect direction of clouds is studied and an evaluation of the accuracy of these methods is
done.

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