

Rainfall Monitoring System: Counting Rain Drops

Rainfall data plays an important roll of indicator for monitoring crop situation in a drought / flood year and Prediction. Prediction of a drought like situation and early warning required to be issued to farmers / public as early as possible to face a natural calamity. Analysis of rainfall is also required for long term agricultural planning. This needs a comprehensive database of the Rainfall with timely collection from the Rain recording stations and various analysis.



CVK Maruti Rao
District Informatics Officer
balangir@ori.nic.in



A.K Hota
Technical Director
akhota@ori.nic.in

Much of the information about the rainfall climatology of India is based on monthly, seasonal and annual rainfall data, which are derived from daily rainfall recorded at individual stations. It is of interest and importance to study the climatological aspects of the daily rainfall distribution over the country, which has a wide variety of rainfall regimes. Such information is of relevance for the efficient management of Water Resources System, Agricultural operations etc. as well as for a better understanding of the processes producing rainfall.

Present prevalent methods of monitoring such information utilize manual observation and recording of data, which is highly error-prone.

Conventional Method

- Collection of Daily Rainfall Data from Rain recording stations geographically located in every CD Block through Telephone/VHF
- Compilation at District Emergency Control Room
- Transmission to State Head HQ through Telephone/Fax/Email

Problems

- VHF facility is not accessible directly from District Emergency Control Room to all the Blocks
- Takes 3 to 4 hours everyday for

Collection / Compilation and Transmission of Data from all the stations at District Emergency Control Room

- It Takes further time for Data Analysis i.e Daily, Weekly and Monthly Deviation Reports through manual calculation which needs valuable man hours
- Frequent Data Manipulation at different levels is not ruled out.

“Counting Rain Drops” - the Rainfall Monitoring System is an effort to transform the existing manual system to a technology based online system. This web-enabled solution facilitates Rainfall stations to enter data on the system, which in turn gets compiled, and analyzed time-wise and location-wise. The application generates various Reports and Graphs RR / District wise. The data may thus be made readily available to any interested department / organization via the Internet.

This monitoring method can not only increase the reliability, but also improve the timely availability of data, and hence contribute



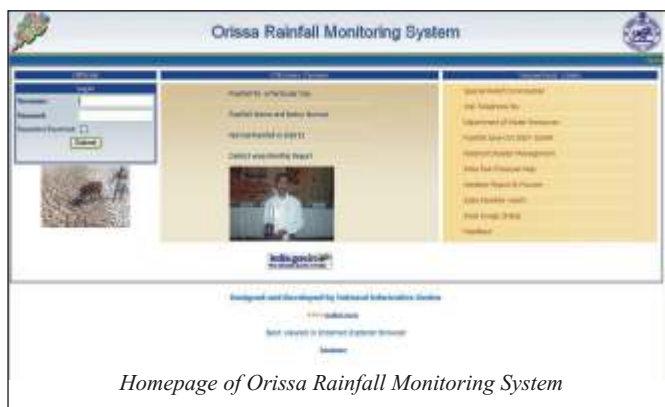
Sh. Debesh Das, IT Minister of West Bengal and Chief guest at Dataquest E-Gov Summit handing over the Trophy to CVK Maruti Rao, DIO, NIC, Balangir

significantly to the betterment of different sectors in day-to-day activities as well as for long-term planning.

To add to its credit & achievement, the application has bagged the Data Quest e-Governance Champion, Special Jury Award in 2008.

Utilization of existing Infrastructure

With the existing network infrastructure at Block & District level the web based software has been conceived and hosted as <http://rainfall.ori.nic.in> On successful implementation of this System in Balangir District, Orissa in the year 2005, the project has been implemented across all districts of Orissa with following Long term & short term objectives.



Homepage of Orissa Rainfall Monitoring System

Long Term Objective

- To strengthen the timely Data collection and transmission procedure
- To create comprehensive database of Rainfall
- To have a proper computerized monitoring system
- Planning and decision making for Implementation of Agri-Based Programme by Agriculture Department, Watershed Development, NGOs.

Short Term Objective

- To plan for quick mitigation measures for an eventual Drought like situation
- To help in analysis of Crop condition and Weather situation for early warning to farmers

Salient Features

- Generation of various Reports for in-depth analysis and better management at Rainfall recording Station, District & State level on Daily, Weekly, Monthly basis.

- Generation of reports of Deviation from Normal and Meteorological drought class (Severe, Moderate, Mild, Normal) and Rainfall Pattern (Excess, Normal, Deficient, Scanty, No Rain).
- Rain intensity Indicator Report using Colour codes to indicate alarming status i.e. No Rain, Very Light Rain, Light Rain, Moderate Rain, Rather Heavy Rain, Heavy Rain, Very Heavy Rain.
- Facility to Collect Temperature data.
- Generation of Negative and Normal Bar Graphs for Graphical Analysis.
- Reminder email for Data Entry from District Administration account to defaulter Rainfall Recording (RR) Station, if any.
- Data Log to keep track of changes in the updation of Rain Data, so that manipulation of data could be traced out.
- RR stations which are not monitored by the SRC Office but existing in the district can be kept as Optional Stations for recording in the application.
- Reports downloadable in Excel format for easy analysis at user level.

Impact Analysis

- As the existing Network infrastructure is being used, the investment is negligible and the return is in multiples of investment in terms of saving man-hours and Communication Cost.
- Ease in Monitoring of Rainfall at RR Station wise, District and State.
- Comprehensive Database of Rainfall of Orissa.
- Reduced the time and cost of communication.
- Reduced man-hours in collection and compilation of data.
- Web application helped in Data sharing to Govt. Organizations, NGO's and Citizens as & when required.

For further information, contact

CVK Maruti Rao
District Informatics Officer
NIC, Balangir
balangir@ori.nic.in

Edited by: R. Gayatri