

## In this issue

### Journal Examines Itself

#### *Through the scientometric lens*

In this issue, Marisha, from the UP Rajarshi Tandon Open University, examines your favourite journal with a scientometric lens. Publication pattern and rate of growth, impact of the journal as measured from citations, pattern of international collaborations, highly cited papers, major contributing organizations and countries, and major research themes over the years – the works.

Your favourite journal started in July 1932. Now, in July 2019, one can look at how the journal grew from one issue per month to two, and how each issue is becoming more voluminous to signal the potential to become a weekly publication like *Science* and *Nature* – the models that the founders had.

The author of a General Article in this issue highlights the growth of the journal, the growth in the international collaborations of its authors, and other aspects which are of interest to those who pursue scientometrics. But more importantly, the article provides adequate food for thought for the people behind the journal's publication.

What is it that makes a journal click with its readers? What needs to be done to improve the quality of the journal? The article on **page 190** calls for some soul searching.

### Indian Coral Reefs

#### *Thermal stress assessment*

India has five major coral reef regions: Andaman, Nicobar, Lakshadweep, Gulf of Mannar and Gulf of Kachchh. Five geographical regions far separated from each other, at different latitudes on the Indian coast. The colonies of small polyps in the coral reefs are prone to large scale mortality when sea-surface temperatures increase. On a larger scale we see this as a bleaching of the reefs.

In this issue, researchers from the Space Applications Centre, ISRO

and the Kurukshetra University examine the bleaching of these coral reefs during 1997–98, 2010 and 2015–2016, the three major mass coral bleaching years, globally.

They analysed coral bleaching indices from Indian coral reef regions in the light of the NOAA optimum interpolated sea-surface temperature version 2 high-resolution dataset and identified the Nicobar region as the most vulnerable among the Indian coral reef regions in India.

Interestingly, they find that the Andaman, Nicobar and Gulf of Kachchh regions, far separated in longitude and latitude, went through high intensity coral bleaching in 2010, whereas the Lakshadweep and Gulf of Mannar regions, again separated by land masses, showed high intensity coral bleaching in 2016.

The Research Article on **page 242** in this issue provides clues for conservationists and poses problems for meteorologists to solve.

### Review of Recent Floods

#### *Geomorphology meets meteorology*

Researchers from the IMD, New Delhi, the National Geophysical Research Institute, Hyderabad, the Wadia Institute of Himalayan Geology, Dehradun, JNU, New Delhi and the National Disaster Management Agency, New Delhi come together to review the recent floods in India. Extreme floods in Uttarakhand (2013), Srinagar (2014) and Chennai (2015) were chosen for close examination since the locations were geomorphologically distinct. Uttarakhand is on the Himalayan slopes, Kashmir in a valley and Chennai is on the south east coast. In all three cases, a huge amount of rainfall in a short time met with shortcomings posed by limited exits for the outflow of water.

What causes these instances of intense rainfall? The researchers point out the subtle ambivalence of the relationship between the Indian summer monsoon and the western

disturbance caused by the movement of the Westerlies to lower latitudes – the interaction either causes a monsoon break or intensification depending on the phase of the monsoon. The phenomenon explains the floods in Srinagar, Uttarakhand and even the Gujarat floods of 2017. But how about the Chennai floods of 2015?

Chennai gets rains from the North East Monsoon. Here, a combination of the development of a sustained low pressure area along with the development of a high pressure zone to the west of India that constrained the movement led to incessant high rainfall in a highly populated city.

By reviewing these recent floods from geomorphological and meteorological perspectives, the authors come up with suggestions for forecasting and managing flood disasters. See **page 204**.

### Analysis of Accidents

#### *Coal mine overdump*

Coal is an important and strategic resource. Opencast mines to extract coal produce huge amounts of overdump. In 2015–16, Coal India Limited alone dumped more than one billion cubic metres of overburden. If the slope and other parameters of the overdump are not carefully designed and executed, the overburden can suddenly give way due to slope failure. This phenomenon has cost many human lives in the past.

A. K. Dash from the Department of Mining Engineering, National Institute of Technology, Raipur does a careful and comprehensive root cause analysis of a particular slope failure accident to come up with a series of suggestions for preventive steps. Poor safety culture, a tendency to take undue risk without assessment and a culture of denial have to be overcome first, he says. Read on from **page 304**.

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