

Editorial - May 2016

After bringing out March/April issue some significant developments changed the structure of JIGU. As planned the outgoing editorial team succeeded in bringing out two special volumes; both of them have been released during GBM of IGU held on 15th March. As promised we succeeded in making the journal a cited journal under a new category introduced by Thomson Reuters (TR). The *Emerging Sources Citation Index* (ESCI) accreditation from 2016, is a major positive step to enhance visibility of JIGU (http://wokinfo.com/products_tools/multidisciplinary/esci/). This development should encourage researchers to contribute quality articles, as their studies would be available for international scientific community through TR website. The journal has dedicated website, **www.j-igu.in**, where contributors and readers can download details pertaining to publication norms, contents of old and present articles and titles of forthcoming. To facilitate faster publication of peer reviewed and selected articles, journal has been converted as bimonthly in place of quarterly. Because of this change, for the first time this May issue has come out.

As I agreed to serve as Chief Editor for a further period of two years stating from 1st April it is my bounden duty to thank each and every member of outgoing team for their help and support in strengthening JIGU. I seek their continued support to JIGU. The incoming editorial board has a bigger task on their hands. Every member of the incoming board is requested to take interest in reviewing articles, motivating their colleagues and wards to contribute articles to the journal. It is essential for us to fight our natural resistance to change. We need to figure out what needs to be done. We need to find out what no longer needs to be done, and then take steps to stop doing it. As doing more with less drained my energies completely during earlier term of two years, I urge my colleagues to do more by doing differently. Such a change needs setting aside ego hassles and extending support to one another believing others are as good as you. In nut shell work smarter, perpetually adjust, refine, innovate and adapt.

JIGU is every one's property and it can safely grow and blossom only when scientific community extends support. IGU award winners have moral obligation

to strengthen JIGU. In spite of repeated requests only 10% of award winners have contributed articles. It is for those who have shut their ears and eyes to our pleadings to change their attitude and perception. Whatsoever a great man does, the same is done by others as well. Whatever standard he sets, the world follows. Since the award winners are identified as great they are requested not to set wrong standards to be copied by others, quoting precedence. Let my genuine appeals be not construed as irresponsible.

Request to authors:

One of the conclusions I've reached as I've grown older and, I hope, wiser is that...less is usually more. In other words, when given the opportunity to simplify your life...take it. I compare it to pruning a tree. By removing the excess branches, the tree has more energy to bear beautiful blossoms and healthy fruit. Such an approach has become essential in structuring individual issues of JIGU. Compared to March-April issue we have half the number of articles in May issue. Such a reduction is also essential in size of the articles. Many times authors prefer to have number of tables, figures and in addition to narration of details given both in the tables and figures, increasing number of pages. A good article with focus on main theme and derived results in about 8 to 10 pages can serve better compared to a longer version. Contributors are requested to focus on methodology and results.

Poster presentations during IGU annual conventions and the necessity to introduce Virtual Poster Showcases (VPS)

We have long been advocating that IGU caters to the needs of students and research scholars. Unfortunately, due to various limitations poster presentations by students are crammed in to a two hour session. These sessions neither satiate the thirst of inquisitive student/young researcher nor allows senior scientists to interact properly with the students. In place of this unhealthy compressed poster presentation, a new program of online student poster sessions-- The Virtual Poster Showcase (VPS) (started by American Geophysical Union-AGU) can enhance students' confidence and career skills.

Students generally need to attend an in-person conference to present a poster, but only a tiny percentage of them do. The American Geosciences Institute (AGI) estimates that there are 38,000 undergraduate geoscience students in 2-year and 4-year programs in the United States and 65,000 to 100,000 undergraduates in non-U.S. programs (according to the AGI's "Status of Geoscience Workforce 2014" report). Yet a look at the annual conference programs of the leading geoscience societies (including IGU) shows that with a few exceptions, the number of posters presented by undergraduate students is less than 100, which leaves a significant gap.

VPS can facilitate the building of skills to develop and present a poster and to review science. AGU leads a group of societies committed to growing and developing the global talent pool. AGU believes that every undergraduate student doing research, whether field/lab based or literature based, should have the opportunity to present a poster. The Virtual Poster Showcase (VPS) achieves that goal by offering a platform that allows any faculty to couple research with a poster presentation opportunity.

A Virtual Poster Showcase takes place in phases. Students first register in the online platform and submit an abstract in one of five divisions: Earth sciences, ocean sciences, atmospheric sciences, planetary sciences, and environmental sciences. Graduate students submit abstracts by division and also choose a discipline. VPS does not require membership in a professional society. Showcase abstracts, starting with those from 2016, will become part of a database, which will allow each student to have a citable abstract from the poster presentation. As soon as a student receives a notification that his or her abstract has been accepted, the student can submit the poster about the research as well as a link to a video explaining the work. Students can access online guidelines for writing an abstract, creating a poster (including maximum dimensions), and making a video by visiting IGU website.

After the phase of uploading posters and videos ends, students need to be encouraged to participate in the peer evaluation phase, during which they view and judge couple of other students' posters. Students use the platform to pose questions and receive feedback, as well as to score the posters using a rubric (A rubric is an easily applicable form of authentic assessment).

All students who participate in a showcase become eligible to receive a certificate of participation after they complete the peer evaluation phase of the event. Students who presented highly ranked posters receive other recognition as well.

Since IGU entered in to an MOU with AGU for effective co-operation in propagating earth system sciences and as JIGU editorial advisory committee comprises at least 3 eminent US scientists who have close links with AGU, IGU management can seek needed guidance from AGU through these 3 advisors for introduction of VPS during forthcoming annual convention at ISM, Dhanbad. Such an initiative strengthens IGU's resolve to encourage students/ research scholars.

Better Tools to Build Better Climate Models

Developing, maintaining, and enhancing a predictive climate model demand enormous human and computing resources. Decades' worth of observational data must be compiled, vetted, and integrated into a database. Parameters and variables must be identified and built into algorithms that simulate physical processes. Massive calculations can then convert past observations into predictions of the future. To determine the accuracy of predictions, results are validated by comparing them to present-day observations. As new data are fed to the model and scientific understanding of climate systems evolves, new information gets built into the model, and the testing and validation continue. One of the most resource-intensive aspects of climate modeling is the creation of a system for calibrating climate models, where model simulations are used to validate model output against observational data sets that span the globe. It is called a "climate model test bed." Such test bed environments typically evaluate each component of the model in isolation, using a skeleton framework that makes the module behave as if it were functioning within the larger program. To calibrate the model against regional observational data sets, uncertainty quantification techniques assess the accuracy of predictions, given the limitations inherent in the input information. If model developers could compare test bed output to observational measurements as the output was being generated, the comparison could facilitate aligning the model with the observed data. This capability could eliminate some of the more tedious activities associated with model development and evaluation.

If successful, the capability could accelerate the development of climate sub-model components, such as atmosphere, land, ocean, and sea ice. Researchers from five Department of Energy (DOE) laboratories of USA are currently developing this real-time comparison capability. If successful, the capability could accelerate the development of climate sub-model components, such as atmosphere, land, ocean, and sea ice. It could also improve the process by which the sub-models are integrated with each other to form the resulting coupled Earth system climate model.

The prototype test bed team is now under the banner of the newly formed Accelerated Climate Modeling for Energy (ACME) project, under the auspices of the U.S. Department of Energy's Office of Science. Under ACME, the team will continue its efforts to deliver an advanced model development, testing, and execution workflow and data infrastructure production test bed for DOE climate and energy research needs. The team

anticipates rolling out the test bed by end of 2016 for ACME use.

<https://eos.org/project-updates/better-tools-to-build-better-climate-models>

Let us wish for its success to put at rest various anomalies in different models that are creating bottle necks.

In this issue

The present issue has 8 research publications, in addition to editorial and news and views. Out of which the last two are categorised as research notes. Author and title details are listed in the Contents Table. More specific information may please be extracted by going through the individual papers.

New Editorial board solicits continued support from scientific community.

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