Editorial

Wish you and your families A Happy and Prosperous 2015 and years to come. We have had our own ups and downs; an oft faced experience. When I look back I am convinced that it is crazy to expect miracles and one should be happy if things move instead of getting stagnated. I am personally indebted to many young and senior colleagues for their support to the journal. I do feel it is time these dedicated few come forward and take the reins. All of us want the journal to grow in quality and as things stand such a dream can take a shape only when all the concerned keep the growth of the journal above personal interests. That is the Simple Truth.

Simple Truths: I reproduce here the introductory remarks for the book *Dial It Down, Live It Up*…… by Jeff Davidson. Many of us need to enjoy our lives, knowing fully the SIMPLE TRUTHS.

"To begin, we need to understand that complexity is a universal norm, while simplicity in your life is an achievable exception. As we grow, we often leave creativity and simplicity behind and start to look for answers in complexity. However, those who are most successful have discovered a foundational principle of success: there is no genius in complexity. Today, the term simplicity means different things to different people. For some, it is the quest for more control over their time or space, with less to clean or maintain. For others, it's having less stress, fewer bills to pay, or more leisure time. Many associate simplicity with a peaceful state of mind often linked with spirituality. Your personal quest for simplicity might encompass one or all of these. We've arrived at the point where technology and information come hurtling towards us; we're pummelled by innumerable rules, instructions, and laws that we are expected to know and heed. It's no wonder that we feel overwhelmed and exhausted. Not surprisingly, more people are reassessing how they work and live in order to achieve a simpler, more effective lifestyle which doesn't sacrifice what matters to them".

Let us enjoy by being as simple as possible. As pointed out by enlightened souls "**Richness is not earning more, spending more or saving more, but richness is when you need no more"** Once this gospel truth is accepted we can lead a simple and happy life. Nothing is permanent and we need to think and behave in a less complex manner, to enjoy our life. There is absolutely nothing in the world that has the power to ruin our day. If you are upset, it is because you have directed your mind to be so. Initially these truths can be hard to accept because you have become so accustomed to giving your power away. Every time you blame another person for your unhappiness you are giving your power away. Stop blaming and start healing. This is more so in the case of intellectuals, who are under stress for achieving more and more, without getting satisfied with what they have earned. Once the realization dawns, they become immune to many unpleasant developments and enjoy their achievements. They invariably will be better placed to savour the beauty of Nature and enjoy life. Let us be less complex and simpler.

Need to strengthen data generation and usage initiatives

John Orcutt, editor in chief of AGU's newest journal, believes in the power and importance of open data availability for the advancement of science. Furthermore, he says, scientists have no credible venue in which to publish the methodologies, instrument specifications, and processes used to gather data from their research. AGU has begun accepting submissions for its new open-access journal, Earth and Space Science. The journal will focus on papers offering observations of and about any part of Earth, our solar system, and Earth's space environment. It will also seek papers that contribute to the understanding of such observations, including methodology, instruments, and modelling, across all fields. "Today open data are becoming much more important to the scientific community, and it's becoming more of a standard for science in general to have access to those data," said Orcutt, a professor of geophysics at the Scripps Institution of Oceanography at the University of California, San Diego and a former AGU president.

Since the beginning we have been advocating that our own journal encourages publication of such

details, as acquisition of quality data is vital for producing meaningful models. As such it is time we allot separate slot for publication of such details and thereby give needed encouragement to field scientists.

Focus on application oriented Basic science

Due to monsoon aberrations we have faced considerable hardship in 2014, for want of adequate water in some segments of both the urban and rural sectors and devastations due to unprecedented floods in other places. As stated in the editorial of October, 2014 issue, it is essential for all the intellectuals to pool their wisdom based knowledge to address the problems faced by the common man. If we continue to alienate ourselves from the main stream, concentrating purely on basic research a situation may arise when we will be left with only our technical reports and scientific publications to quench our thirst or bail us out from neck deep of water. I am not against basic research, as I know its importance. I started my research career with data based basic research. According to my perception basic research should be of use in enhancing knowledge base or in providing solutions to observations that are unique and useful in understanding the basics associated with a system or an entity. Some may call my statements non scientific. I do not mind such a title, if my feelings can change even couple of intellectuals. Let application oriented basic research receive due recognition. However, such a research should not be a routine exercise of producing models that are non unique and do not meet well known boundary conditions. As stated by Larsen et al (Eos, Vol. 95, No. 32, 12 August 2014)simplified models have flourished in the geosciences since the advent of computer programming. Yet progress on using simplified models to resolve causality in complex Earth and environmental systems has been uneven. There seems to be an emerging recognition that exploratory models occupy a niche distinct from that of detailed simulation models, analogous to the way exploratory statistics occupy a niche distinct from predictive statistics. Exploratory modelling and exploratory statistics both yield a coarse, fundamental understanding of primary drivers and sources of variability and may serve as an important precursor to more detailed subsequent modelling. Combined with continually advancing computing power and the introduction of new statistical techniques, exploratory modelling will provide geoscientists with ever more opportunities to enhance their understanding of complex systems. In fact, they are rapidly emerging as a key foundation for any endeavour that seeks to test hypotheses to better understand system drivers. This approach is paramount in earth science research and it is time the cutting edge research in geosciences follows this path.

Scientists Role in building New India:

Please refer to the speech given by our Prime Minister on 15th August, 2014. It is time we convert our capabilities in to products that can ensure the welfare of millions and enthuse our young to work with a purpose and self satisfaction. The P.M. evidently is interested in no cosmetic treatment and believes in rooting out the illness in totality. We appreciate and support any positive initiatives. However, we need to be rational and organised in our approach, as any hasty decisions in the name of development should not lead to irreversible damage to life saving basic elements….water, air, food and natural resources. Let us (earth scientists) help the government, as we can realistically contribute in bringing out a change, for good. It is essential for us to climb back to a position of excellence in scientific research, which can help not only us but the entire humanity.

Exploration of Red planet: U.S. and Indian Spacecrafts Orbit Mars

More than 650 scientists from 21 countries gathered in mid-July, 2014 at the California Institute of Technology (Caltech) to debate and examine the status of exploration of the Red Planet. Since the Seventh International Conference on Mars in 2007, seven Mars missions—Mars Odyssey, Mars Exploration Rovers (Spirit/Opportunity), Mars Express, Mars Reconnaissance Orbiter, Phoenix, and Mars Science Laboratory (Curiosity)—have been returning data, augmented by telescopic observations, studies of Martian meteorites, laboratory work, and modeling studies. They expressed, the expected additional data from new orbiters from US and India would add valuable information and help in unraveling many more mysteries.

As expected Mars received two new visitors in September, 2014. First, NASA's Mars Atmosphere

and Volatile Evolution (MAVEN) spacecraft entered into orbit around the planet on 21st September. Just 3 days later, the Indian Space Research Organization's (ISRO) Mars Orbiter spacecraft— Mangalyaan—also successfully entered into Mars orbit. Each received a "welcome to the neighborhood" tweet from NASA's Mars rover Curiosity team and the European Space Agency's (ESA) Mars Express team.

MAVEN will explore the processes through which the top of the Martian atmosphere can be lost to space. Scientists think that this loss could be important in explaining the changes in the climate of Mars that have occurred over the last four billion years.

Mangalyaan`s (MOM) objectives include developing the required technologies for an interplanetary mission. The spacecraft also has five scientific payloads to explore the topography, mineralogy, atmosphere, and other features of Mars. MOM is primarily intended to provide information to ISRO on how to plan, design, manage, and operate interplanetary missions. It is an invaluable and essential process that will allow larger scale future missions. The information will be of great use to engineers and mission planners at ISRO. Although limited, the Mars information will also no doubt be of interest to researchers. MAVEN's data is far more specialized and of interest to smaller groups of researchers, but the project fits under one of NASA's "Big Questions" - specifically understanding how life developed on Earth. Studying the atmosphere of Mars should provide insights to researchers interested in the evolution of Earth's atmosphere.

India's Prime Minister, Narendra Modi, was present at ISRO's Telemetry, Tracking and Command Network facility in Bangalore when mission specialists confirmed that the Mangalyaan spacecraft had successfully entered into orbit around Mars. "History has been created today. We have dared to reach out into the unknown and have achieved the near impossible," Modi told the assembled scientists. (**Source**: Eos, Vol. 95, No. 39, 30 September 2014;for more information, see http://mars.nasa.gov/maven/ and http://www.isro.org/mars/home.aspx). We share the joy of millions in congratulating both the groups of space scientists. It is heartening to learn MAVEN and MOM will gather data to be shared with scientists worldwide.Itaugurs well for scientific development.(See more at: http://whyy.org/cms/skytalk/2014/#sthash.BWZF2yIC.dpuf).

(**P.S**: It is heartening to learn an undergraduate from Washington State University has found a technique to find water from Mars. This might probably help the space scientists to have a relook in to Mars surface for traces of water. Details of the study can be found from Kellie T. Wall, Michael C. Rowe, Ben S. Ellis, Mariek E. Schmidt, Jennifer D. Eccles. **Determining volcanic eruption styles on Earth and Mars from crystallinity measurements**. *Nature Communications*, 2014; 5: 5090 DOI: 10.1038/ncomms6090.)

A state of confusion in the Energy sector

Energy sector is one important sector that needs to be strengthened with practically achievable targets, without offsetting the ecosystem balance. Instead of dreaming about unattainable targets, it is essential to select a couple of viable technologies to meet our demands. In this context the following write up opens new vistas, as it exposes the reality and cautions us about our short sighted attitude, in meeting energy demand. It is essential to concentrate on reducing the demand and not aim at to meet unquenchable demand. As part of a change government should curb the unending thirst for rich legacies, following the western model. It is time to realise western model is not applicable to South Asian countries, including India, where population growth is acting as self destructing weapon.

Nuclear energy and shale gas development, each began with the promise of cheap, abun- dant energy and prospects for national energy independence. Nuclear energy was touted as "too cheap to meter," and shale gas promised jobs and other economic benefits during a recession. In each case, industry and US government moved quickly to realize the economic and political benefits. It is perhaps ironic that nuclear energy, a mature technology with low greenhouse gas emissions, is now being replaced by lower□cost shale gas, for which the environmental impacts are hotly debated. After more than half a century, the nuclear industry still has no place for final disposition of its most dangerous wastes. Likewise, the shale gas industry may find itself facing decades of vociferous public opposition. There are

lessons to be learned from similarities in the factors driving these controversies. Given the uncertainties and economic importance of shale gas development, a comprehensive scientific effort is needed to evaluate the environmental impacts and inform the regulatory framework.

The Images of the victims of Nagasaki and Hiroshima reinforced by mushroom clouds and children taking "shelter" under desks have been called one of the most powerful complexes of images ever created outside of religion. Intertwined is the fear of radiation and cancer. Thus, many perceive the risks of nuclear power and its wastes as uncontrollable, catastrophic, and dreaded. For shale gas development, flames from kitchen faucets (e.g., as displayed in the documentary Gasland) supplemented by explosions of well houses likewise present a powerful image in framing negative public perspectives. In place of radiation is the fear of unknown chemicals used in hydraulic fracturing, or "fracking," and unpredictable events. Once embedded in people's minds, these images and fears are difficult to dispel. A contributing factor in both cases is a perceived imbalance of power between ordinary people on one side and "big money" or "big oil" on the other.

Technical Overconfidence In contrast to public fears is a steady confidence by industry and dismissal of public concerns as irrational. For decades, industry and government considered nuclear waste disposal to be a trivial technical problem, in part because the volume of nuclear waste generated per energy consumed is small. Scientists and policy makers were slow to recognize the importance of public perceptions in shaping the nuclear waste debate. The overconfidence carried over to the sites investigated. Early in the Yucca Mountain studies, the Board on Radioactive Waste Management forewarned that unrealistic expectations for prior knowledge risked undermining public trust, as surprises inevitably would occur. The warning was largely ignored, but it turned out to be a premonition of events to come. Among these, bomb pulse levels of chlorine-36 found in the exploratory tunnel at Yucca Mountain suggested that water percolated along unexpectedly fast pathways. Though never confirmed, the Energy Department responded with an abrupt about-face from touting the natural system to an emphasis on the engineered barriers. This dealt a substantial blow to the project's credibility. Technical overconfidence, exacerbated by insufficient geoscience input, also led to reliance on model predictions in the nuclear waste program that far exceeded what most geoscientists believe science can provide. Similarly, technical overconfidence undermines public attitudes toward shale gas development. Most notable is the statement made by many in the industry that there are no documented cases of hydraulic fracturing contaminating groundwater. This nuanced statement referring to the process of hydraulic fracturing ignores the known cases of contamination by oil and gas operations. The public does not distinguish between the fracking process and the totality of unconventional oil and gas operations; thus, any reports of contamination seem completely at odds with industry assurances. In addition, there are inevitable surprises, including seismic activity resulting from underground waste injection and methane leaking from shale gas operations in greater amounts than previously recognized.

A lack of confidence in government and institutions appears to be endemic in today's society. Secrecy and exemptions from environmental regulations exacerbate this problem. The nuclear energy industry inherited a culture of isolation and secrecy from the nuclear weapons program. Key decisions on nuclear waste were made with almost no public involvement, and nuclear weapons sites were exempt from pollution control laws for many years. Shale gas development has its own secrets in the lack of disclosure of fracturing chemicals, leasing activities, and settlement claims. Likewise, the industry has exemptions from various environmental laws and regulations. Contributing to the lack of trust, self appointed experts and the media can direct great attention to minor problems, while bigger issues are neglected. For example, a focus on fracking chemicals coming up through geologic layers has diverted attention from more important issues, such as proper well sealing and management of the chemicals and flow back/produced water at land surface. Strong public opposition can be seen as a breakdown of trust in the governmental and industrial managers of these technologies. Moreover, trust is quickly lost and slowly regained. The problems are deeply rooted and not resolvable by public relations campaigns. In dealing with complex issues such as nuclear waste and shale gas development, it is critical to communicate to the public which issues have a large scientific consensus,

where the technical uncertainties and disagreements lie, and how important these are to resolve. A focus on efforts to address critical questions— in some cases, as they arise by surprise—is much preferred to blanket assurances. Many public concerns are legitimate. Shale gas development can bring an intensive industrial operation with associated traffic, noise, and construction to a populated or pristine area over the short term and unknown effects to water quality over the longer haul. This is a major contributor to public opposition, reinforcing the importance of early engagement of citizens to address their concerns. To build credibility with the public, some degree of consensus within the scientific community is necessary. This requires an ongoing open process of inquiry and re-examination. Good science moves slowly. It takes time to develop defensible, evidence based science for complex issues such as shale gas and nuclear waste. The public should be engaged during this learning process (Source:Eos, Vol. 95, No. 29, 22 July 2014).

I have reproduced the above mainly to draw the attention of our scientists / technical experts on the need to go in detail various facets of any developmental initiative, as repercussions due to blinkered vision could be disastrous. It is evident that if we can be transparent in our plans and executing methodologies, even if delayed, results would be positive. Let us hope we will look deep in to the problems associated with Nuclear Energy and Shale Gas and come out with apt strategies to make these energy sources basically eco-friendly. If we do not learn from the experiences cited above, our proposed energy initiatives would end up as failed initiatives. Let us be pragmatic and not dogmatic. Since non renewable energy resources are getting depleted, apart from introducing pollution, it is time we initiate preventive and curative measures, to ensure our limited resources are properly exploited and used for the benefit of our society. Some of the apt measures are : 1)take needed measures to ensure safety of our existing nuclear power generating reactors and nuclear waste disposal sites; 2) avoid to the extent possible high pressure fracking operations to extract shale gas from compact and thick shale formations, until all safety measures are in place; 3) if high pressure fracking is essential let the executing authorities take needed precautions, making use of experiences from US;4) introduce in a phased manner renewable solar and wind energy,basically in the agriculture sector and electrification of rural housing sector. Research in this field needs to be strengthened. (**P.S**:In the meantime I have come across a news item stating studies in Pennsylvania have found no traces of any chemicals at shallower depths, after fracking operations, and chemical traces are confined to depths of about 5000 ft.*"The final report from a landmark federal study on hydraulic fracturing, or fracking, found no evidence that chemicals or brine water from the gas drilling process moved upward to contaminate drinking water at a site in western Pennsylvania. The Department of Energy report was the first time an energy company allowed independent monitoring of a drilling site during the fracking process and for 18 months afterward. After those months of monitoring, researchers found that the chemical-laced fluids used to free gas stayed about 5,000 feet below drinking water supplies. Scientists used tracer fluids, seismic monitoring and other tests to look for problems, and created the most detailed public report to date about how fracking affects adjacent rock structures."* Even though it is a good news, we need to verify the impact of such fracking operations in Cambay and K-G basins before assertively ruling out any pollution of ground water. I am stating so as the news item also contains couple of sentences about continued doubts expressed by the environmental protagonists---. *"But the Energy Department report is far from the last word on the subject. The department monitored six wells at one site, but oil or gas drilling at other locations around the nation could show different results because of variations in geology or drilling practices. Environmentalists and regulators have also documented cases in which surface spills of chemicals or wastewater damaged drinking water supplies. "There are a whole wealth of harms associated with shale gas development" separate from fracking, said Maya K. van Rossum, of the Delaware Riverkeeper group. She mentioned methane gas leaks, wasteful use of fresh water and air pollution, and said the Energy Department study confirms a point that the Riverkeeper has been making: that faulty well construction is the root cause of most problems, not fracking chemicals migrating up through rocks".* While appreciating the initiative taken by US oil industry, I reiterate that It is better to rule out doubts once for all, by carrying out transparent monitoring operations in our sedimentary basins of varying structure and composition, as we cannot afford any pollution problems. Due to monsoon aberrations our

surface and subsurface water dynamics has undergone considerable change in the last decade. One side we are facing water shortage problems and the other side pollution of water resources is enhancing the misery. This fact needs to be given due importance by the Oil Industry.).

Coming back to our energy needs I am impressed by a recent article in "Physics Today"(Sep, 2014).It is worth going through to strengthen the belief that renewable energy resources alone can help the human race, in overcoming present problems. Details are reproduced below:

"The coming era of unlimited—and free—clean energy"

Vivek Wadhwa—former software entrepreneur, present technological evangelist, and recent author of a *Washington Post*blog piece predicting planet wide energy transformation—gets plenty of exposure. Headlines and subheads for his other *Post* pieces amplify the techno-optimism of his energy-prediction piece, itself headlined "The coming era of unlimited—and free—clean energy." Here are two examples:

* "It's a beautiful time to be alive and educated: Tremendous advances in technology are letting us dramatically improve the human condition."

* "How today's technology is rapidly catching up to Star Trek: Science fiction is becoming reality given the rapid pace of development in technology."

Wadhwa premises his plentiful-energy prediction on an analogy with cell phones. After tracing early reactions to their potential, he writes: The experts are saying the same about solar energy now. They note that after decades of development, solar power hardly supplies 1 percent of the world's energy needs. They say that solar is inefficient, too expensive to install, and unreliable, and will fail without government subsidies. They too are wrong. Solar will be as ubiquitous as cellular phones are. Futurist Ray Kurzweil notes that solar power has been doubling every two years for the past 30 years—as costs have been dropping. He says solar energy is only six doublings—or less than 14 years—away from meeting 100 percent of today's energy needs. Energy usage will keep increasing, so this is a moving target. But, by Kurzweil's estimates, inexpensive renewable sources will provide more energy than the world needs in less than 20 years. Even then, we will be using only one part in 10,000 of the sunlight that falls on the Earth. In places such as Germany, Spain, Portugal, Australia, and the Southwest United States, residential-scale solar production has already reached "grid parity" with average residential electricity prices.

Wadhwa also predicts breakthroughs for wind, biomass, thermal, tidal, waste-breakdown energy, and, crucially, battery technology for energy storage. He predicts that the fossil-fuel industry will decline and fail. The environment will improve. Cheap energy will overcome water scarcity by enabling cost-effective processing of seawater. Farmers will "grow hydroponic fruits and vegetables in vertical farms located near consumers"—that is, in "glass buildings without the need for pesticides" and with recycling of "nutrients and materials to ensure there is no ecological impact."At the end, Wadhwa echoes, in effect, a recent comment by former USA President Clinton. Wadhwa asserts, "We are surely heading into the era of abundance that Peter Diamandis has written about—the era when the basic needs of humanity are met through advancing technologies." On CNN, Clinton recently recommended Diamandis's book "Abundance: The Future Is Better Than You Think." Clinton said: *While the headlines are really bad in the world today, the trend lines are pretty good. Extreme poverty is down. The health care is improving dramatically around the world. There are developments now which make me believe we might be able to do what we did in the '90s, which is to use technological developments to create more jobs than we lose*.

I think people should read this and get some good ideas. I am not against high pressure fracking to extract shale gas, as it would add to our energy basket. But, I am against any step that is taken, as a matter of routine practice, which affects our already battered environment. My apprehensions are strengthened by recent findings. ……A few years ago, while poring over satellite images of the Earth at night, scientists spotted the bright glow of natural gas flares burning in the oil and gas fields that have fueled America's recent energy boom. Now they have

spotted something else from space: large plumes of fugitive methane gas liberated from these formations by unconventional extraction methods like horizontal drilling and hydraulic fracturing (*Rosen, J. (2014), Methane leaks from oil and gas fields detected from space, Eos Trans. AGU, 95(46), 427).*

When better alternatives can help us, as detailed by Wadhwa, it is our duty to give full support to such developments. I do know it is easier said than achieved. However, optimism is needed to go forward. Let us hope the optimistic predictions of Wadhwa would come true and stop uninhibited annihilation of natural resources, in the name of development.

(**P.S**: A *solar cell that resembles a flower is offering a new take on green energy in Japan, where one scientist is searching for renewables that look good. Hiroshi Segawa, a professor at University of Tokyo's Research Centre for Advanced Science and Technology, is hoping his dye-sensitised solar cell, which meshes floral beauty with cutting-edge technology, will brighten the scene. The leaves generate electricity, which is stored in the flower. As the device charges up the petals turn increasingly blue. But as Annabelle discharges, those blue petals turn white, just like the real-life hydrangea*).

In this Issue:

In this issue, apart from the editorial and News and Views at a glance, we have included seven research papers, one opinion/ debate and a brief opinion from an expert and Editor`s response. I and my colleagues do believe that the contents would be useful to both the learned seniors and young researchers. A brief write up on the contents is given below.

The first paper by KSR Murthy entitled "Exploring the passive margins- a case study from Eastern Continental Margin of India" describes a synthesis of the results obtained from marine geophysical studies spanning over a period of nearly two decades, mainly related to the geomorphology, tectonics, coastal seismicity, Holocene sea level history and marine geohazards of the margin. The geodynamic evolution of this passive margin is explained based on the major tectonic lineaments like Continent-Ocean Boundary (COB), the NE-SW horst and graben trend of the continental basement and the rift related dyke intrusions within the continental basement. Land – Ocean Tectonic lineaments (LOTs) identified from the data reveal neo-tectonic activity associated at three locations over the ECMI. Holocene sea level history has been traced from the high resolution seismic reflection data. Marine geo-hazards over the basinal and non basinal areas of ECMI have been demarcated. In the second paper Gautam Gupta et al in their research publication entitled "Geoelectrical investigation for potential groundwater zones in parts of Ratnagiri and Kolhapur districts, Maharashtra" have detailed that study of significant variations in nature and extent of weathering due to the presence of fractures and lineaments at depth and the geomorphological features at the surface is vital for groundwater exploration in a hard rock terrain. It is revealed from the geoelectrical investigations that several lineaments cris-crossing the two segments of study region play a significant role in the occurrence and movement of groundwater. In the third paper Jyothi Singh et al through their manuscript entitled "Structure and evolution of Satpura Gondwana Basin over Central Indian Tectonic Zone: inferences from seismic and gravity data" have pointed out that complex crustal structure with anomalous velocity/ density layers beneath the CITZ suggests probable magmatic under-plating due to Deccan volcanism. It is suggested that the Satpura Gondwana Basin, formed as drop down basin over the CITZ, could have been finally uplifted to its present height by the late Cretaceous Deccan volcanism. In the fourth paper Dhanunjaya Naidu et al through their research article "Deciphering the seismicity pattern from MEQ study at Indira Sagar reservoir area, Madhya Pradesh, India" have assessed seismic potential of the area and its possible impact on the dam. In addition, role of crustal scale seismotectonic features in triggering the seismicity is assessed with the help of magnetotelluric (MT) study. MT study delineated the major geological formations and fault features, which are responsible for seismic activity in the proximity of the reservoir. Seismicity was found to be decreasing after water impoundment in the reservoir, contrary to reservoir triggered seismicity. It is interpreted that seismicity of the region could be associated with local adjustments in the crustal blocks along a series of parallel gravity faults towards north and south of the Narmada River and other existing seismogenic faults near the dam site. Seismicity, as a whole, is inferred as due to regional tectonic forces within the Central

India Tectonic Zone (CITZ) and reservoir has little impact. In the fifth paper entitled "Movement of western disturbances and associated convection" Ramesh Chand and Charan Singh have shown that the normal movement of the troughs in mid-latitude zonal westerlies is about 4.50 longitude /day. In general, these disturbances move faster in case of typical synoptic situations like a low pressure area or a cyclonic circulation lying ahead of the system in lower tropospheric levels. A ridge or an anticyclone is located ahead of the system in lower levels in case of slow moving disturbances. In general, the cloud top temperatures associated with WDs have ranged from -40 to -600 C indicating that convection associated with Western Disturbances (WDs) is of moderate to intense type. Some of the WDs became intense when the southern end of the trough in zonal westerlies at mid-tropospheric levels extended southwards up to north Arabian Sea. In the sixth paper entitled "A study of ionospheric precursors associated with the major earthquakes occurred in Pakistan region"Pundhir et al analyzed the GPS-TEC data for two months of April and September, 2013 in which two major earthquakes ($M > 7$) occurred in the adjoining region of Pakistan. They used the quartile based statistical technique for the analysis of data to identify the significant precursors associated with the earthquakes. These precursors occurred on different days in the interval of 2-10 days prior to the earthquakes. They also examined the effect of geomagnetic storms on the total electron content (TEC) data and found that the precursors are not influenced by the storms. The cause of the precursors is $E \times B$ drift with the electric field generated over seismic regions and penetrated the ionosphere. In the seventh paper Rajesh Rekapalli and R.K.Tiwari through their research article entitled "A short note on the application of Singular Spectrum Analysis for Geophysical Data processing" made an effort to briefly discuss the principal component analysis,frequency filtering, noise suppression and data gap filling of Singular Spectral Analysis (SSA) and their utility in geophysical data processing. In the eighth paper "Sustainability or Resilience: Need of the Hour: A Debate "P.R.Reddy pointed out that it is clear that in the rapidly changing ecosystem we need to be always alert to face unexpected challenges, and for such preparedness one should have resilience. At the same time if our approach is always aimed at having defensive strategies it becomes difficult to step forward. While aiming to have sustainable development, we need to fix boundaries, and our initiatives should not lead to the obliteration of these boundaries, for this would lead to irreversible consequences to the environment and to the well-being of present and future generations. He concludes by saying that the best approach, therefore, may be to aim at achievable goals and meet them by carrying out midcourse corrections with resilience in mind.

As in the past the News and Views at a glance section of the journal contains sub sections 1) Forthcoming Events; 2) Awards and Recognitions; 3) Science News and 4) Living Legends-Know your Peers. Finally, for the first time, a new subsection has been included where an expert`s opinion and Editor`s response have been brought out as an article.

The Editorial Team solicits your continued support to the Journal.

P.R.Reddy