ASSOCIATION OF GEOSCIENTISTS FOR INTERNATIONAL DEVELOPMENT (AGID)

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Website of SAAWG (South Asian Association of Women Geoscientists)
www.saawg-agid.org

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From Honorary Editor's Desk

First of all, I wish a happy, active and fruitful **NEW YEAR 2018** to the members and well-wishers of AGID and SAAWG. In June 2018, I will publish the

75th Issue of AGID Newsletter which I started in June 1986 with the support and encouragement from AGID Council. These 31 years of the Newsletter have given me a unique chance to connect with Geoscientists world over.

I have also completed 41 years of AGID Membership which started with my getting elected to AGID Council in the Council Meeting during IGC-1976 in Sydney. Since then, I somehow developed a strong affiliation with Australia and had an opportunity to visit the beautiful continent sixteen times in connection with ground water conferences and meetings of International River Foundation (IRF) in Brisbane, as an Ambassador of IRF.

I visited all major cities in Australia; Sydney, Canberra, Melbourne, Adelaide, Perth, Darwin and Brisbane and had a good exposure to surface water and ground water management in this dry continent. Learning from the experiences and mistakes of city planners in Europe, the city planners in Australia have carried out futuristic planning for matching the increasing demand on water resources in urban agglomerates with adequate sources of supply. No wonder, Australia has several Universities and Institutions offering Graduate and post-Graduate courses in water resources. Many of these give scholarships to students from South and South-east Asia.

Back home, preparations for the next (36th) IGC-2020 have started in New Delhi. AGID has been in contact with the Scientific Programs Committee and has requested that a Full Theme on "Geosciences for Development of Low-Income Countries" should be given to AGID for organizing various sessions, just like the previous IGCs in Oslo, Brisbane and Cape Town. AGID proposes to organize a session on new topic of "Socio-Geology – Taking geology to the society", at the 36th IGC. Prior to this IGC in New Delhi, AGID is trying to organize an international conference in Dhaka in 2018, with sponsorship of Geological Survey of Bangladesh and SEGMITE (Society of Economic Geologists and Mineral Technologists). The 8th World Water Forum to be held in Brasilia from March 18-23, 2018. Our Vice President Prof. Rosely Imbernon from the University of Sao Paulo will be in touch with the Organizing Committee.

I take this opportunity to thank the Council of IUGS for approving Annual Grant to AGID, in appreciation of AGID's activities.

E N V I R O N M E N T – G E O L O G Y

Volcanic Collapse in 1888 Becomes a Benchmark for Tsunami Models

When volcanic mountains slide into the sea, they trigger tsunamis. How big are these waves, and how far away can they do damage? Ritter Island provides some answers. Scientists have profiled the seafloor and subsurface structures near Ritter Island, north of New Guinea, in 2016. A large portion of this volcanic island collapsed and slid into the sea in 1888, making it an ideal case study for modeling volcanic collapse landslides and the tsunamis they generate.

In March 1888, a 4-cubic-kilometer chunk of the Ritter Island volcano collapsed into the Bismarck Sea northeast of New Guinea. This volume of land was about twice that of the Mount St. Helens landslide in 1980, and it is the largest historically recorded tsunami-causing volcanic sector collapse.

The ensuing landslide triggered a tsunami tens of meters high. The waves were still 8 meters high when they reached parts of the island of New Guinea that are several hundreds of kilometers away, according to observers who kept a record of the event. Volcanic islands are the source of some of the world's largest landslides. These landslides have the potential to generate large tsunamis. Scientists have debated the magnitude of these tsunamis, but much uncertainty remains over landslide dynamics and how far a tsunami can travel across an ocean basin while remaining large enough to cause damage.

Mauna Loa (Hawaii) is showing persistent signs of volcanic unrest.

(From the Journal of American Geophysical Union)

Since 2014, increased seismicity and deformation indicate that Mauna Loa, the volcano that dominates more than half of the island of Hawaii, may be building toward its first eruption since 1984.

Thousands of residents and key infrastructure are potentially at risk from lava flows, so a critical question is whether the volcano will follow patterns of previous eruptions or return to its now historically unprecedented 33-year slumber.

Mauna Loa has erupted 33 times since 1843, an average of one eruption every 5 years Typical of shield-building Hawaiian volcanoes.

Since the two most recent eruptions, in 1975 and 1984, monitoring by the U.S. Geological Survey's Hawaiian Volcano Observatory has changed dramatically. Ground-based instruments continuously record signals from global navigation satellite systems (GNSS, of which GPS is one example), measuring the changing shape of the ground surface in near-real time, and interferometric synthetic

aperture radar (InSAR) provides extensive spatial coverage of deformation. Seismic monitoring has also improved with the addition of more stations, increased data fidelity, and improved data analysis.

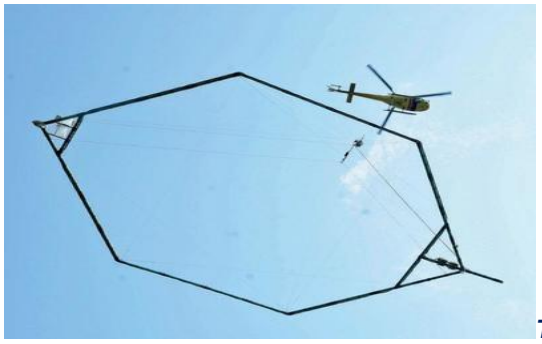
More people live on the slopes of Mauna Loa now than in the 1970s and 1980s, so improvements in monitoring technology are of more than just academic interest.

How does this recent period of unrest compare with the periods just before previous eruptions? How reliable are these comparisons in predicting the next eruption?

As of this writing, elevated rates of seismicity and deformation continue. Improvements in monitoring networks and alarming systems since 1984 put HVO in a better position to provide early warning and, once an eruption has commenced, help guide emergency response. Additional efforts to inform and prepare the public for the eventual eruption are an important step in minimizing impacts to life and property.

R E S O U R C E S

Airborne aquifer mapping study for City of Surat: An Industrial Hub on Western Coast of India



The aquifer mapping survey will help identify zones for drilling productive French wells to meet the city's water demand

Surat Municipal Corporation (SMC) has become first urban corporation in India to undertake aquifer mapping study for its groundwater resources in river Tapi and identifying zones for drilling productive French wells to meet water demand of the city.

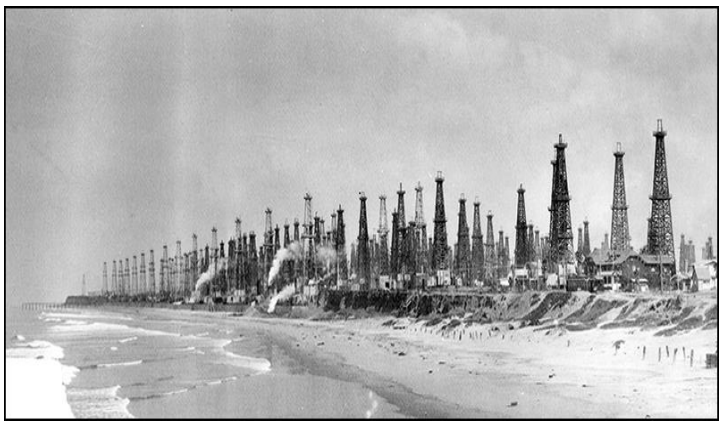
The civic body with the help of National Geophysical Research Institute (NGRI) launched a Heli-borne survey based on electro resistivity technology (ERT) for seven days starting from Tuesday. The aquifer mapping survey will be carried out over river Tapi stretch from Magdalla in the downstream to Kamrej in the

upstream. The total area to be surveyed through Heli-borne survey would be 268 square kilometer. Through this survey, around 500 meter depth beneath the riverbed will be scanned to identify and locate the confined and saturated aquifers.

Massive Earth Quake and Oil Production

Humans may be to blame for California's second-largest 20th century earthquake, and a team of seismologists has now proposed how that could have happened. A new study suggests that this earthquake could have been set off by nearby oil-well drilling and pumping activities, and it explains how that might have happened.

A *Los Angeles Times* article published on 11 June 1952 tells of a successful new oil well at Wheeler Ridge in Kern County in California. The well operated for 98 days, but then, on 21 July at 4:52 a.m. local time, a 7.5-magnitude earthquake let loose beneath the well along the White Wolf fault. It was the second-largest earthquake in California in the 20th century, and it killed 12 people. A team of seismologists, reporting new research, thinks pumping of oil triggered the event. The work is the first to give a detailed explanation for how industrial activity could cause such a big earthquake.



(Oil wells line the Huntington Beach shoreline in southern California in 1926.)

According to the team's calculations, the amount of oil removed from above the fault generated a stress change of about 1 bar of pressure, a value that seismologists generally think of as the amount of stress change required to set an earthquake in motion.

Opening of the website of the "Global Alliances for Water and Climate"

The Global Alliances for Water and Climate - GAfWaC - are opening their website www.water-climate-alliances.org to inform all stakeholders involved in the actions taken to combat the effects of climate change in the water sector**.** Today, the alliances represent more than 450 organizations around the world, which have committed themselves to mobilize their partners, identify and disseminate good practices and support the development of new projects by field stakeholders involved in adaptation to climate change and in the resilience of the inland freshwater sector.

Freshwater is indeed one of the first victims of climate change, so we must act quickly, before it is too late and the mobilization of all stakeholders is essential at the global level, to urgently implement the programs needed to prevent and adapt to the effects of global warming. As water is essential for human health, food security, energy production, industrial productivity, tourism, navigation, biodiversity, in addition to basic human needs, securing water resources means ensuring security in all these areas of economic, social and environmental development.

The "Geoethical Promise"

The new "Geoethical Promise" is part of the "Cape Town Statement on Geoethics", approved by the IAPG Executive Council on 26th October 2016. (IAPG: International Association for Promoting Geoethics) It is proposed to be administered to Geology graduates in Italy at the Graduation Ceremony:
I promise…
… I will practice geosciences being fully aware of the societal implications, and I will do my best for the protection of the Earth system for the benefit of humankind.
… I understand my responsibilities towards society, future generations and the Earth for sustainable development.
… I will put the interest of society foremost in my work.
… I will never misuse my geoscience knowledge, resisting constraint or coercion.
… I will always be ready to provide my professional assistance when needed, and will be impartial in making my expertise available to decision makers.
… I will continue lifelong development of my geoscientific knowledge.
… I will always maintain intellectual honesty in my work, being aware of the limits of my competencies and skills.
… I will act to foster progress in the geosciences, the sharing of geoscientific knowledge, and the dissemination of the geoethical approach.
… I will always be fully respectful of Earth processes in my work as a

geoscientist.
I promise!

N E W P U B L I C A T I O N S

"They Do Things Differently There" (Published by Aspect Design 2016) Compiled and Edited by: A J Reedman & D G Bate. 318 pages. Price: U.K. 12.99 Pounds

This is a selection of magnificent stories written by geologists from the International Division of British Geological Survey (BGS), related to their personal experiences while working on development projects in various low-income countries from Afghanistan to Zimbabwe. British Geological Survey (BGS), established in 1835, is the oldest geological survey in the world. Over the last 50 years, BGS sent more than 350 of its expert geologist on such projects. These geologists faced unusual challenges and experiences while working in remote areas, including poor communication facilities, demanding environments and adjusting with unfamiliar societies and cultures. This book is less about geology and more about the geologists; their challenges and excitement while working with local counterparts, often under conditions which appear to be very rudimentary from the perspective of 21st century.

Dr Antony J Reedman, the Editor of the fantastic book and also the Treasurer of AGID, has kindly sent me a copy of the book. Having worked in remote areas in Africa, Bangladesh, Laos and India, I am enjoying this book like a story book.

Journal of Geology and Geoscience

Journal of Geology and Geoscience (JGG) is a multi – disciplinary journal which reflects all the disciplines in geoscientific research from all the earth sciences. It opens a new era for methodological, philosophical and fundamental study of geology. It encourages research on physical, chemical and biological process that occurs within the earth, solar system and all their environments and its components.

The mission of JGG is to advance the geoscience research on all aspects of theoretical, observational, and computational which lead to discover novel methods and to flourish future evolution. It promotes the global community in scientific discover and to widen the applications in geoscience knowledge. It encompasses the interaction between the atmosphere and its parts, study of weather and climate.

All new geological insights include petrology, geochemistry, paleontology, sedimentology, stratigraphy, structural geology, geophysics, geomorphology, hydrogeology, remote sensing and planet geology, mineralogy and environmental geology. This is an OPEN ACCRESS journal. Website: http://sciaeon.org/geology-and-geoscience/home E-mail : geology@sciaeon.org

COMING EVENTS

- **25 - 27 February 2018**

The 36th National and the 3rd International Geosciences Congress, Tehran, Iran
Website: http://36nigc.conference.gsi.ir/en

- **28 February - 2 March 2018**

World Sustainable Energy Days 2018, Wels, Austria
Website: http://www.wsed.at/en/world-sustainable-energy-days.html

- **20 - 24 March 2018**

Earth Sciences for Society. El Jadida/Marrakech, Morocco. Organized by the Arab GU, AAWG and AGN. *Details*: 1st circular

- **8 - 13 April 2018**

European Geosciences Union (EGU) - General Assembly 2018, Vienna
Website: https://www.egu2018.eu/

- **4 - 5 June 2018**

5th Annual International Conference on Geology & Earth Science, 4-5 June 2018, Athens, Greece.
Website: https://www.atiner.gr/geology

- **16 - 21 June 2018**

IUGS Resources for Future Generations RFG2018 Conference. Vancouver, Canada
Website: http://rfg2018.org

- **22 - 26 July 2018**

International Geoscience Education Organization (IGEO) four yearly conferences: GeoSciEdVIII, Campinas, Sao Paulo, Brazil. *Details*: GeoSciEdVIII

- **23 - 26 September 2018**

GeoEdmonton 2018, the 71st Canadian Geotechnical Conference and the 13th Joint CGS/IAH-CNC Groundwater Conference, Edmonton, Alberta, Canada.
Website: http://www.geoedmonton2018.ca/

- **23 - 28 September 2018**

Summit: Geoscience and Society "Bridges to Global Health, Resilience, and Sustainability" Fairmont Southampton in Hamilton, Bermuda, UK. *Flyer*

More **COMING EVENTS** available at www.iugs.org