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### CONGRATULATION

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## WWD and WMD Celebration

On the occasion of World Water Day (WWD) and World Meteorological Day (WMD), SOHAM Nepal organized various programs in association with other local institutions during March 20-24, 2015. Every year, March 22 and March 23 is celebrated as a World Water Day and World Meteorological Day respectively. This year the theme for World Water Day and World Meteorological Day were "Water and sustainable development" and "Climate knowledge for climate action" respectively.

SOHAM Nepal and Kathmandu University jointly organized a seminar on "Water and Climate Knowledge for Sustainable Development" particularly focused for media on March 20, 2015. The programme was held at the premises of Kathmandu University, Dhulikhel. Seven speakers on various topics delivered the lectures. The program was also followed by

media interaction. Various media reporters/representatives participated in the programme.



National Hydro-meteorological Educational Ceremony-2015 was organized by Students' Organization of Meteorology (SOM) and SOHAM Nepal with support from various national and international organizations. The programme was held at Tri-chandra College, Kathmandu during March 22-23, 2015. The programme includes stall exhibition, series of lectures by the eminent experts and signature campaign for green environment. Altogether 5,000 students visited the exhibition and also participated in various programmes.



Similarly, a "Scientific Workshop" on the occasion of World Water Day (WWD) and World Meteorological Day (WMD) was organized by Department of Hydrology and Meteorology (DHM), Government of Nepal; SOHAM-Nepal; Central Department of Hydrology and Meteorology (CDHM), Tribhuvan University; Department of Meteorology (DOM), Tri-chandra College, Tribhuvan University on March 23, 2015.

Eight technical papers were also presented in the workshop as follows, "Flood induced disasters and stakeholder involvement to implement IFM in Nepal" by Mr. Narayan P. Gautam;

“Flood and Early Warning System” by Mr. Binod Parajuli; “The Comparisons of Climatological Water Balance With Measured Discharge of Langtang Kyanging Hydrological Station of Nepal Himalaya” by Dr. Tirtha Raj Adhikari; “Estimation of discharge from Langtang River Basin, Rasuwa, Nepal, using a glacio-hydrological model” by Mr. Niraj Pradhananga; “Present Climate Change Scenario of Nepal from the perspective of Climate Change” by Prof. Rupak Man Rajbhandari; “Meteorological Observation & Forecasting” by Ms. Shanti Kandel; “Improving Climate Science Knowledge-Base for Effective Adaptation” by Ms. Shobha Kumari Yadav; and “Precipitation Downscaling over Western Nepal” by Dr. Madan Sigdel respectively.

Similarly, Nepal Academy of Science and Technology (NAST), SOHAM Nepal and other partners also organized a seminar on “Water and Sustainable Development” on March 24, 2015. Dr. Hemu Kafle delivered a technical presentation on “Drought hazard in western Nepal”

### Memorandum of Understanding

SOHAM Nepal signed Memorandum of Understanding (MOU) with University of Birmingham, UK on March 19, 2015. Similar MOU was also signed with Department of Hydrology and Meteorology on April 19, 2015 regarding Mountain EVO equipment installation and operation.

### Outsourcing Expertise

Dr. Prem Sagar Chapagain has been contributing as a part time Senior Researcher for Mountain EVO research activities.



SOHAM Nepal with support from Department of Hydrology and Meteorology (DHM), District Development Committee (DDC) - Mustang, International Hydrological Programme-Nepal (IHP-Nepal) and lead by Imperial College, UK is implementing a three year’s “Adaptive Governance of Mountain Ecosystem services for Poverty Alleviation (ESPA) enabled by Environmental Virtual Observatories (Mountain EVO-Nepal)” project in Nepal. Similar project is implementing in Peru, Kyrgyzstan, and Ethiopia as well.

### Talk Programmes

- A talk programme on “METGIS application” was organized at the meeting hall of Department of Hydrology and Meteorology, Naxal on January 12, 2015. Dr. Gerald Spreitzhofer, Chief Executive Officer from MetGIS Professional Weather Service delivered the lecture on the aforementioned topic.
- A talk programme on “Monsoon in Nepal” was organized on March 3, 2015 specially targeted for the B.Sc Meteorology students. Mr. Barun Paudel, secretary, SOHAM Nepal, delivered a lecture. The

programme was organized at Tri-chandra College, Ghantaghar.

### Paper Presentation

- “Evaluating the potential of ESS to alleviate poverty in the upper Mustang region, Nepal” by Ms. Praju Gurung, Researcher, SOHAM Nepal, on “International conference on climate change innovation and resilience conference for sustainable livelihood”, organized by Small Earth Nepal-SEN ( Jan 12-14, 2015)
- “Socio-economic impacts due to climate scenarios in Mustang Nepal” by Mr. Santosh Regmi, Researcher, SOHAM Nepal, on “Sixth International Seminar on Small Scale Irrigation Systems: Challenges to Sustainable Livelihood” organized by Farmer Managed Irrigation Systems Promotion Trust, Kathmandu, Nepal (February 15-16, 2015)

### Flood and landslide - 2015

In the year 2015, several landslides and flash floods occurred due to extreme rainfall events in the country resulting loss of lives and properties. Some of the major events are presented below.

#### • Taplejung Disaster (June 10-11, 2015)



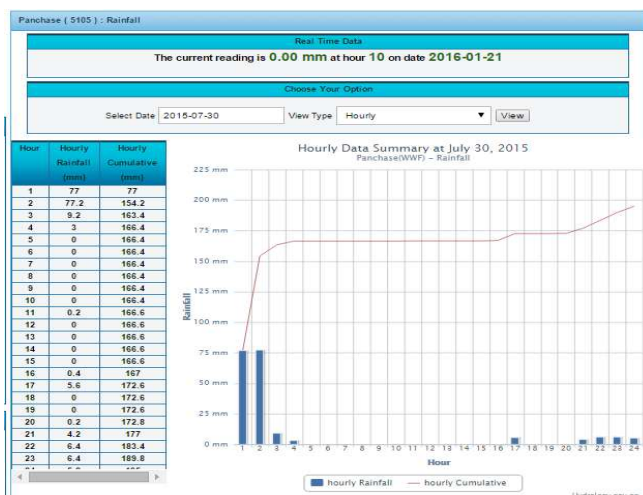
Over 40 people died and over 80 injured in floods and landslides happened in the Taplejung district of eastern Nepal. During 10 and 11 June, 130 mm of rainfall occurred in this district according to Department of Hydrology and Meteorology, Government of Nepal. The heavy rain caused the burst of the banks of Mewa and Tamor rivers and triggered the landslides.

Area affected by landslide in Taplejung district, Nepal.  
Photo: Nepal Police

#### • Narayani Basin Flood and Landslide Disaster (July 31, 2015)

Landslides and flash floods triggered by heavy rainfall during July 31, 2015 killed at least 34 people in various places of Kaski, Myagdi, Baglung and Chitwan districts. More than a dozen people were missing while nearly 20 others were injured in the disaster. About half a dozen villages in Kaski were devastated and many houses at affected areas were also swept away.

The Panchase real time weather station operated by the flood forecasting section of Department of Hydrology and Meteorology measured around 200 mm of rainfall in 24 hours period, out of which 165 mm occurred during three hours.



Data display from Panchase Hydrological Stations (Source: Department of Hydrology and Meteorology, Government of Nepal)

• **Bhaktapur Flood Inundation (August 26, 2015)**

Incessant rainfall in Bhaktapur district on August 26, 2015 night flooded the settlements including the temporary camps of the April 25, 2015 earthquake survivors in different parts of the district. Nagarkot side of the Hanumante rivulet got extreme rainfall recording 96 mm in 24 hours period. The flooded water entered the Bhaktapur settlements at 5 am and the Madhyapur Thimi settlements at 9 am, creating panic among the locals. Many people saved their lives fleeing to higher ground.

The flooding caused by the swollen Hanumante rivulet submerged large swathes of areas along its banks. Flood water entered into buildings, schools of Chyamasingh, Jagati, Maheshwari, Srijananagar, Sallaghari and along the banks of Hanumante river, submerging the streets. The flood water level reached even up to the first floor of the residential buildings and schools. Temporary settlements of the earthquake survivors were especially affected as the tents were completely drowned, forcing occupants to flee to safe places. The temporary camp housing around 850 earthquake survivors at the Maheshwari playground in Bhaktapur Municipality were completely inundated. Hundreds of dwellings in Bhaktapur and Thimi also inundated due to the flash flood following the torrential rain. Hundreds of houses along the Araniko Highway, hospitals, schools, temporary camps of earthquake survivors, Jagati- Chyamasingh area, Bhelukhel, Rammandir and Barahisthan are the worst affected areas due to the deluge.

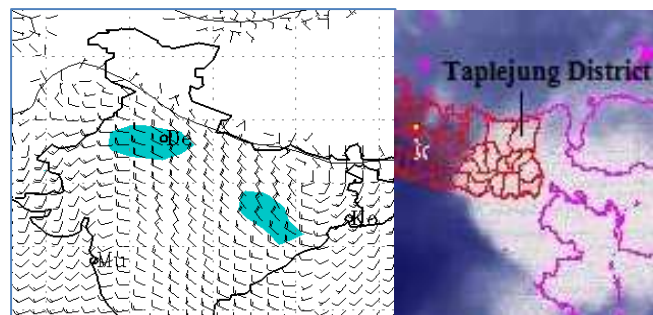
(Contributor: Mr. Binod Parajuli)

**Heavy Precipitation Event at Taplejung**

On June 10, 2015 Taplejung received heavy rain leading to landslide and damage to many lives and properties. 24 hours accumulated rainfall amounting 129.5 mm and 107.4 mm was recorded at 8:45 am of June 11 and 12 respectively in Taplejung synoptic station. The extreme 24 hours accumulated rainfall of Taplejung on June is 134.7 mm.

Weather chart depicted that the cyclonic circulation was developed in Bihar and adjoining areas and small trough was

extended up to 500 hpa on June 9, 2015. In addition, strong south easterly wind from Bay of Bengal in the lower troposphere and intense heating at the surface level also led to the sufficient rise of the moist air. The hills and himalayas lying in Taplejung was sufficiently responsible to uplift the moist air leading to the cooling of the air and ultimately precipitated heavily in the ground causing the landslide in Taplejung district.



Wind Forecast Chart at 850 hpa for 00:00 UTC of June 11 (Source IMD) and FY2E Satellite imagery (2015-06-10-20:45Z; Source: Meteorological Forecasting Division, Department of Hydrology and Meteorology, Government of Nepal)

Moreover, there was sudden rise of maximum temperature from 24.5°C in June 9 to 28.2 °C (close to extreme maximum temperature in June i.e. 29.5°C) in June 10 causing more instability and uplifting of the moisture laden air from Bay of Bengal.

The infra red imagery at 20:45Z (2:30 am NPT) of June 11 indicates dense cloud masses over the far eastern region of the country including Taplejung. Moreover, the satellite imagery animation shows that the locally developed cloud masses at and around Jhapa and Taplejung intensified and merged with the eastward moving cloud mass developed over Pokhara and adjoining areas resulting in heavy precipitation in Taplejung.

Furthermore, greater than 100 mm of rain in 24 hours and the loose hills due to rupture by the devastating earthquake on April 25, 2015 might be one of the major causes of landslide in Taplejung on June 10, 2015.

(Contributor: Ms. Shanti Kandel)

**Fourth International Conference of Asian Dendrochronological Association**

The Fourth International Conference of Asian Dendrochronological Association on “Climate Change and Tree Rings” was jointly organized by Government of Nepal, Ministry of Forests and Soil Conservation; Central Department of Hydrology and Meteorology-Tribhuvan University (CDHM-TU) and Asian Dendrochronological Association (ADA) from March 9-12, 2015 in Kathmandu, Nepal.

The program was inaugurated by Prof Chirik Shova Tamrakar, Dean- Institute of Science and Technology (IOST)- Tribhuvan University. Mr. Suman Kumar Regmi, General Secretary, SOHAM Nepal, also attended as a guest in the inauguration session. Around 148 participants from 26 countries including Nepal attended the conference.

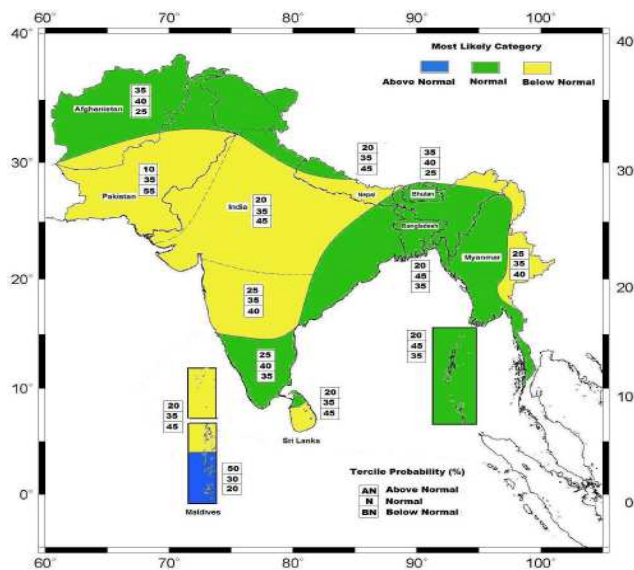
The conference focused on various aspects of dendrochronological research such as dendro-glaciology, dendro-climatology, dendro-ecology, dendro-archaeology, isotope, geomorphology and wood anatomy. Altogether 84 oral presentations under 18 different technical sessions and 46 poster presentations were presented during the conference. Just prior to the conference five day long pre-conference field week training was also conducted during March 4-8, 2015.

Dr. Dinesh Bhujju, Academician, Nepal Academy of Science and Technology ( NAST); Prof Dr. R.R. Yadav, Mr. Birbal Shaheni, Institute of Paleobotany, Lucknow, India; Prof Dr Eryuan Liang, Third Pole Environment (TPE), Chinese Academy of Sciences, Beijing, China; and Prof Dr Achim Bräuning, University of Erlangen, Germany (President-Association of Tree Ring Research) delivered the key note speeches during the conference. In the concluding session, the best poster and the oral presentation awards were also distributed to the top three students in each category.

Asian Dendrochronological Association (ADA) was formed in 2006 with the aim of development of dendrochronology in Asia and is regularly organizing different seminars and workshops in every two years in collaboration with different partners in the various Asian countries.

(Contributor: Dr. Binod Dawadi)

### Sixth South Asian Climate Outlook Forum



Consensus Outlook for the 2015 Monsoon Rainfall over South Asia

The Sixth Session of the South Asian Climate Outlook Forum (SASCOF-6) kicked off during April 19-23, 2015 in Dhaka, Bangladesh. The meeting was attended by representatives from Afghanistan, Bangladesh, Bhutan, India, Maldives, Myanmar, Nepal, Pakistan and Sri Lanka, as well as regional and international organizations.

Below-normal rainfall was predicted over broad areas of western (Pakistan), central (India) and southwestern parts (Sri Lanka) of South Asia and some areas in the northeast (parts of Bangladesh and Myanmar). In Nepal, below normal rain was expected in the country except in the western hilly regions where normal rainfall was predicted for monsoon 2015.

The SASCOF meeting is held each year starting from 2010. The first three sessions of the SASCOF were held at Pune, India and its fourth session was held in 2013 at Kathmandu, Nepal. The fifth session of SASCOF was held in 2014 again at Pune, India. During the meeting, the monsoon outlook over South Asia is developed through an expert assessment of the prevailing global climate conditions and forecasts from different climate models from around the world.

(Contributor: Mr. Suman K. Regmi)

### Congratulation



SOHAM Nepal congratulates Dr. Tirtha Raj Adhikari, Life Member, SOHAM Nepal for receiving Doctor of Philosophy (Ph.D.) award from Tribhuvan University, Nepal on April 6, 2015. The title of his dissertation is "Impact of Climate Change on Flow Regime in Himalayan Basins, Nepal". Dr. Adhikari is an Assoc. Prof. working at Central Department of Hydrology and Meteorology (CDHM), Tribhuvan University, Kathmandu.

SOHAM Nepal congratulates Dr. Binod Dawadi, Life Member, SOHAM Nepal for his nomination as the chair of Asian Dendrochronological Association (ADA) for the period of 2015-2017. SOHAM Nepal wishes for his successful tenure. Dr. Dawadi is also an Assoc. Prof. working at Central Department of Hydrology and Meteorology (CDHM), Tribhuvan University, Kathmandu.



SOHAM Nepal congratulates Dr. Ambarish Pokhrel, Life Member, SOHAM Nepal for receiving best poster awards during 17<sup>th</sup> Atmospheric Chemistry Conference organized by American Meteorological Society (AMS). The poster was a part of his Phd dissertation from Hokkaido University entitled "Ice core records of dicarboxylic acids, w-oxocarboxylic acids, pyruvic acid and a-dicarbonyls from south Alaska: Implications for climate change in the Northern Hemisphere since 1734-2008". Dr. Pokhrel is also a lecturer affiliated with Department of Meteorology, Tri-chandra College, Tribhuvan University, Kathmandu.