



Interaction Program with Journalist, June 2005

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Editor: Archana Shrestha
G.P.O Box 11444

Tel: 977-1-4262974 Fax: 977-1-4262348

Email: soham@info.com.np

NEWS

1. Fourth General Assembly of SOHAM-Nepal

Fourth General Assembly of SOHAM-Nepal was held on 5 August 2005. During the meeting, the third annual progress and financial reports and the future activities for the year 2005/06 were presented and discussed. The major planned activities are:

- Continuation of publishing Journal of Hydrology and Meteorology and Newsletter and organizing talk programs.
- Preparation for the International Workshop/Seminar planned in September/October 2007.
- Celebration of World Meteorological Day on March 23 and World Water Day on March 22 in 2006
- Construction of website of SOHAM-Nepal.
- Endeavour to construct SOHAM-Nepal's own office building.

2. Memorandum of Understanding (MoU) with GEES

SOHAM-Nepal and the University of Birmingham, UK, represented by the School of Geography, Earth and Environmental Sciences (GEES) have signed a MoU to conduct collaborative research in Nepal on hydroclimatology, mainly on (1) climate change and hydrology, (2) snow and glaciers, (3) river sediment loads and transport, (4) isotope hydrology and (5) catchment-scale (flood) river flow modelling. The period of this agreement shall be for five years and may be extended by mutual agreement of the parties.

3. A Tripartite Working Arrangement between WWF-Nepal, DHM and SOHAM-Nepal

An agreement was signed among World Wildlife Fund Inc., Nepal (WWF-Nepal) Program, Department of Hydrology and Meteorology (DHM) and SOHAM-Nepal to establish working relationship among the three organizations to undertake mutually desirable objectives related to hydrology and meteorology in Nepal. This arrangement will be valid till 16 July 2006 and may be extended as mutually agreed upon between the three parties. According to the agreement, SOHAM-Nepal has the following responsibilities:

- Arrange administrative staffs and technical personnel required for the execution of the project under this arrangement.
- SOHAM-Nepal shall sign a separate agreement with WWF to undertake some of the activities under this arrangement.

4. Agreement between WWF-Nepal and SOHAM-Nepal

Under the Tripartite Arrangement, an agreement between WWF-Nepal and SOHAM-Nepal was signed to conduct a project 'Study on the Climate Change Impact on Glaciers in Khumbu Region and Identifying Impacts to Various Sectors'. The agreement is valid from October 2005 till June 2006 and may be extended as mutually agreed between the parties.

5. UNESCO/IHP- Nepal Committee Formed

Recently, UNESCO/International Hydrological Programme (IHP)-Nepal has formed a new Committee with seven members under the Chairmanship of Dr. Madan Lall Shrestha, Director General, Department of Hydrology and Meteorology. The main aim of IHP-Nepal is to promote the activities of hydrological science in Nepal.

6. HMG/N appointed DHM as IPCC Focal Point

As per the decision of His Majesty's Government of Nepal (HMG/N) dated 6 December 2005, the Director General of the Department of Hydrology and Meteorology under the Ministry of Environment, Science and Technology has been appointed as the Focal Point of International Panel on Climate Change (IPCC).

IPCC was established jointly by WMO and United Nations Environment Programme (UNEP) to study climate change related issues.

7. 2005 WMO Research Award for Young Scientists

Two young scientists, Dr. Cunde Xiao, Chinese Academy of Meteorological Sciences, China and Nedjeljka Ćagar of Stockholm University, Sweden received 2005 World Meteorological Organization (WMO) Research Award for Young Scientists.

8. Promotion of Research to Understand the Role of Climate in Spread of Diseases

The Secretary-General of WMO, Mr. Michel Jarraud, during the opening of the 14th session of the WMO Commission for Climatology in Beijing, China (3-10 November 2005), urged that the Commission consider further studies on the impact of climate in the propagation of infectious diseases including the emerging threats of avian influenza (bird flu) and Severe Acute Respiratory Syndrome (SARS).

The role of climate in triggering and spread of certain diseases is one of the aspects of research promoted by the Commission aiming to save lives through effective early warning systems. Such systems are developed by the weather and climate experts in partnership with health and social services. WMO and the World Health Organization are working on guidelines to be used by meteorological and health agencies. (Source: www.wmo.ch/news/news.html)

9. Year 2005: The Warmest Year in Australia

According to the Bureau of Meteorology, Australia, the months from January to October 2005 were the warmest since monthly records began in 1950 and would probably make it the hottest year since annual records began in 1910. Temperatures were 1.03°C above the 30-year average. Similarly, September 2005 was the warmest in 125 years. (Source: www.wmo.int/index-en.html)

ACTIVITIES

1. Talk Programs

SOHAM-Nepal organized two talk programs during May to October 2005, respectively.

The first talk program titled "**Role of agro-meteorology on challenges facing Nepalese agriculture based on cereal crop production in Nepal**" was delivered by Dr. Janak L. Nayava, Chairman, SOHAM-Nepal. The program was followed by a discussion among participants including agronomists and agriculturists.

Dr. Rijan Bhakta Kayastha presented a paper on the **Study of glacier ablation in the Nepalese Himalayas by the energy balance model and positive degree-day method**. His study was focused on the development of a mass-balance model and study of its sensitivity to the input parameters. He also discussed the role of positive degree-day factor for ablation on bare ice and ice under debris cover of different glaciers in the Himalayas.

2. Interaction Program with Journalists

SOHAM-Nepal organized one day seminar cum workshop on **Basic Understanding of Hydrological and Meteorological Sciences** on 12 June 2005 at Sanchargram, Sinamangal under the Chairmanship of Mr. Mohan Bahadur Karki, Executive Secretary of Water and Energy Commission Secretariat. Chief Guest Mr. Lok Man Singh Karki, then

Secretary, Ministry of Information and Communication inaugurated the workshop. The main aim of the seminar was to familiarize hydrology and meteorology to the Journalists. Fourteen journalists took part in the workshop and four technical papers were presented in the workshop. The workshop was beneficial to the journalists and it also helped to publicize SOHAM-Nepal among the people and media. The workshop has proposed SOHAM-Nepal to convey the following recommendations to the concerned institutions.

1. HMG/N should invest more on DHM for building necessary infrastructures.
2. The performance and current benefits from already completed water projects should be assessed and the lessons learnt be made public.
3. A strong functional agro-meteorological study body should be established to study and disseminate various needful information such as onset of monsoon, relevant rainfall information, warnings on climatic conditions etc. to the farmers.
4. HMG/N should establish an effective network to disseminate the climatic information to the people and the media.
5. The present flood forecasting unit of HMG/N should be strengthened.
6. HMG/N should make all the efforts to treat the climate change issues over Himalayas with high priority. UN agencies and international donors' support must be investigated for this purpose.
7. A systematic monitoring of the Border Rivers should be initiated to audit the inflow and outflow of surface water from Nepal. These data are vital in carrying out any water resources talks with the neighboring countries.
8. Flood hazard zoning should be the basis to administer the settlement areas along the river banks

FEATURES

1. Weak Monsoon and its Impacts on Agriculture

This year, the monsoon from the initial stage till the last stage remained mild barring a few days of strong activities in July and August. Monsoon - 2005 entered eastern Nepal on 20 June, delaying by more than one week of the normal onset date (10 June) and covered the west by 22 June. Out of 42 stations used for analysis, only 7 stations received above normal precipitation while remaining 35 stations recorded below normal. The country received 88% of the seasonal normal rain with the highest deficit rain (66%) in June. The country's rainfall was 94% of the normal in July, 120% in August and 72% in September (*Mrs. Mandira Rajbahak, Senior Div. Meteorologist, DHM*).

Late onset as well as weak initial phase of monsoon caused a drought-like weather condition affecting the early stage of seasonal planting, especially paddy in most parts of the country. The entire country had deficit in rain in June due to late monsoon onset. In addition, the monsoon activity was weaker in the east than in the west, mainly in July (**Fig. 1**).

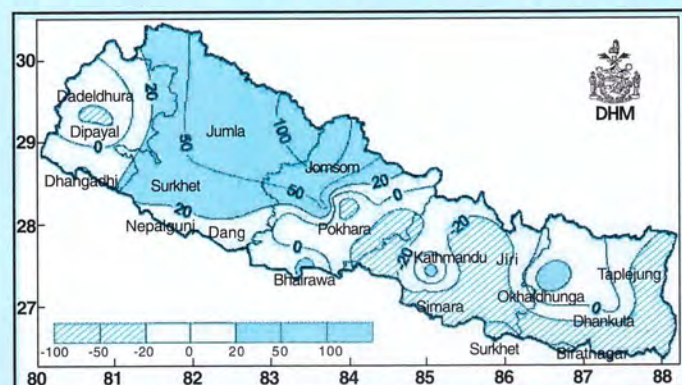


Fig. 1: Rainfall departure from normal (%), July 2005

The impact of this condition was reflected also in agriculture. Only 45-85% of rice planting was completed by the end of August in the east while most of the southern plains of the districts of central and western regions (Bara, Parsa, Rautahat, Chitawan, Kanchanpur, Kailali) completed 95% of the plantation by that time (The Annapurna Post, 23 August 2005). The most affected eastern districts in terms of rice plantation were Siraha, Saptari, Sunsari, Morang, Jhapa, Ilam, Terhathum and Okhaldhunga.

2. Avalanche in Manang District

A very tragic accident due to massive snow avalanche occurred in Kang Guru Himal in Manang District of western Nepal on 20 October 2005. Altogether 18 climbers, 7 French and 11 Nepalese, were reported to have been missing in the mishap. Rescue mission team recovered one dead body after days of search.

Ice and snow avalanches are common in the high Himalayas although casualty in such a large scale is rare. This incident was induced by heavy precipitation from an upper atmospheric trough (upper level low pressure system) which persisted for several days. This upper air system caused heavy precipitation in the western and central regions of Nepal which began on 19 October and lasted for several days (Fig. 2). This could have resulted in massive accumulation of snow in the difficult Himalayan terrain to trigger a snow avalanche. A massive ice avalanche is known to have occurred on 29 October 1980

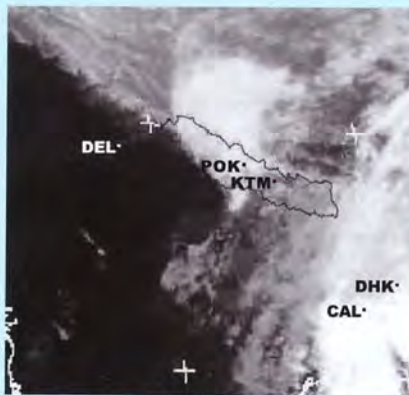


Fig. 2: Cloud patch in western Nepal as visible through satellite picture 20 Oct 2005

in the vicinity of the place where this incident occurred. Similarly, 63 trekkers, mostly foreigners, perished in the high Himalayan foothills of eastern and central Nepal in November 1995 due to very heavy snowfall from the remains of a fast-moving cyclone originated at west-central Bay of Bengal. In view of such disasters, there is a growing sense of urgency to improve the mountaineering expedition

forecasting system in the high Himalayas to mitigate such disasters. This requires an urgent development of meteorological infrastructures in the region. (Contributed by K. B. Manandhar, Meteorologist, Meteorological Forecasting Division, DHM)

3. Flood in Far-Western Region

Three days of heavy rain starting from the evening of 24 September seriously affected two districts of far-western Nepal. Mahakali River, swollen by monsoon rains, flooded parts of a town in Kanchanpur District. Hundreds of people were affected, 134 families were displaced and 200 houses were destroyed (Office for the Coordination of Humanitarian Affairs, OCHA, Situation Report No.1, 30 September 2005, www.reliefweb.int). Similarly, Dadeldhura District was inundated by Shirsha River on 26 September. In the District, 51 people were killed and 26 families were displaced (Agence France-Presse, www.reliefweb.int).

This rainfall was caused by a well marked low pressure area, LPA (which was remains of a cyclonic storm that hit the coast of Andhra Pradesh in India in the third week of September) moving in a north-northeastwards direction from north Madhya Maharashtra. This LPA was over Uttaranchal of India on 25 September. Under the influence of this system heavy monsoon rains were recorded on 25 September over far-western Nepal with the highest rainfall of 207.4 mm at Dipayal, followed by 177.2 mm at Dadeldhura and 94.0 mm at Dhangadhi. The

system persisted till 26 September and became less marked by 27 September.

4. Floods in India

While Nepal observed less number of rainfall related calamities this monsoon, disastrous floods created havoc in India. The most flood affected states in India were Gujarat, Madhya Pradesh, Maharashtra, Orissa, Andhra Pradesh and Interior parts of Karnataka. These floods were caused due to the activities of low pressure systems in the Indian region. Altogether eleven LPAs developed this season, out of which five developed into monsoon depressions and one into a cyclonic storm. This is the first time after 1997 that a LPA intensified into a cyclonic storm during September.

Among these heavy rainfall events, an unprecedented rainfall in Maharashtra on 27 July was the most disastrous one. On 27 July, heavy rainfall of 940 mm was recorded at Santacruz (Mumbai). It was a devastating rainstorm that crippled the lifeline infrastructure at Mumbai for several days. Presence of a well marked LPA over Madhya Pradesh, marked off-shore trough at the surface along the west coast and a well marked east-west oriented shear line in the lower troposphere might have contributed to a favourable setting for the enhanced meso-scale convection around Mumbai on that day (Source: Indian Meteorological Department).



Figure 3: People use a rope to cross a flooded street in Mumbai, India, July 2005 Source: www.dancewithshadows.com/suma/images/rain1.jpg

5. ENSO (El Niño/ Southern Oscillation) Outlook 2005/06

ENSO is the foremost factor that affects the global climate. Generally, El Niño (La Niña) induce weak (strong) monsoon in Nepal. Since ENSO condition is predicted a year ahead, the impact of ENSO on monsoon in Nepal can also be understood a year ahead.

Most of the statistical and coupled model forecasts indicate that ENSO-neutral conditions will prevail during the next 6-9 months (Fig. 3).

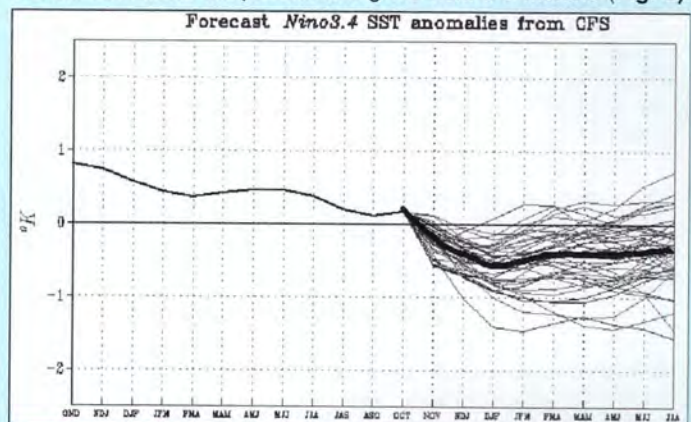


Fig. 3: Forecast of Niño 3.4 SST anomalies (Thin black line observation, Thick black line ensemble mean forecast; gray lines forecast members) Source: www.cpc.ncep.noaa.gov/products/analysis_monitoring/lanina/images/nino34SSTMon.gif

A decrease in Sea Surface Temperature (SST) anomalies is indicated by the coupled forecast system CFS ensemble mean (thick black line) for the Niño 3.4 region over the next three months, followed by persistent weak negative anomalies through mid-2006. According to NOAA, current conditions (stronger-than-average easterly winds over the central equatorial Pacific) and recent observed trends (decreasing SST anomalies throughout the central and eastern equatorial Pacific) do not support the development of El Niño. Rather, these support either a continuation of ENSO-neutral conditions or the development of weak La Niña conditions during the next 6-9 months. If this negative value turned to La Niña then there is possibility of stronger monsoon in Nepal in 2006 (source: www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/index.html).

It is noteworthy that ENSO prediction in May by NOAA for northern summer was accurate. In May NOAA predicted a near normal ENSO condition in northern summer. According to the observation, SST in Niño 3.4 region was less than +0.5°C and the most recent value of the Oceanic Niño Index (ONI, a measure of ENSO) was zero for the period August-October 2005. The patterns of anomalous SST, atmospheric winds, ONI and precipitation over the equatorial Pacific also indicated ENSO-neutral conditions till October 2005.

6. Above Average Atlantic Hurricanes in 2005

The official Atlantic hurricane season starts in June and ends in November each year. The long-term average number of the tropical Atlantic storms is nearly 10 per year including almost 6 hurricanes and 2-3 of those developing into major hurricanes (category 3 or higher scale). September is generally the most active time of the year for the Atlantic. Since 1995, there has been a more active period with a seasonal average of 13 tropical storms, including 7.6 hurricanes and 3.6 major hurricanes (based on data between 1995 and 2003). As of end of October, 23 named tropical storms, including 13 hurricanes with 7 major hurricanes formed this season. With one month of hurricane season still remaining, the 2005 hurricane season has already established a new record for the highest number of Atlantic storms. Monthly distribution of tropical Atlantic hurricane is summarized in the Table 1.

Table 1: Distribution of tropical Atlantic storms

	Tropical Storm	Hurricane	Total
June	2	-	2
July	3	2	5
August	3	2	5
September	-	5	5
October	2	4	6

Hurricane Katrina, a category 4 hurricane when made landfall (with sustained wind of 122 knots) in August, was the worst storms to impact the coast of U. S. in the last 100 years. When in ocean it was a category 5 hurricane. Similarly, Rita, one of the major hurricanes, impacted the Gulf coast of the U.S. causing serious damage and destruction.

DO YOU KNOW ?

- In the Northern Hemisphere, The strongest winds in a hurricane lie in the right front quadrant of the storm with respect to its motion.
- At Thakmarpha and Kagbeni of Mustang District of Nepal, mean monthly wind speed seems to be maximum in monsoon season, while in other parts of the country it is generally minimum in this season.

CONGRATULATIONS



SOHAM Nepal expresses its heartfelt congratulations to Dr. Madan Lal Shrestha, life member, SOHAM-Nepal and Director General, DHM for receiving the first category Royal Nepal Academy of Science and Technology (RONAST) Talent Award-2005 from His Highness Crown Prince Paras Bir Bikram Shahdev. The award is for his contribution to the Study of Climate Change and its Impact in South Asian countries including Nepal. The prize carried a purse of NRs. 50,000 and a commendation letter.

PUBLICATIONS

- Journal of Hydrology and Meteorology, Vol. II, 2005 the annual journal of SOHAM-Nepal was published in June. 11 papers have been included in this Issue.

ANNOUNCEMENTS

1. **World Meteorological Day 2006: Preventing and Mitigating the Impact of Natural Disasters** to be held on 23 March, 2006, Nepal.
Abstract/Paper Submission: 5 March 2006,
arun@dhm.gov.np/archana@dhm.gov.np
2. **Workshop on Flood Forecasting Management in Mountainous Areas**, in Pokhara, Nepal, 17-19 April 2006.
Abstract Submission: 31 December 2005
For details: www.dhm.gov.np/workshop/flood2006/flood2006.pdf
3. **AIR POLLUTION 2006: Fourteenth International Conference on Modelling, Monitoring and Management of Air Pollution**, 22 - 24 May 2006, The New Forest, UK
For Details: www.wessex.ac.uk/conferences/2006/air06/index.html
4. **The Second International Symposium on Quantitative Precipitation Forecasting and Hydrology**, 4-8 June, Boulder, Colorado, USA
Abstract Submission: 20 February 2006
For Details: www.mmm.ucar.edu/events/qpf06/index.html
5. **DEBRIS FLOW 2006: First International Conference on Monitoring, Simulation, Prevention and Remediation of Dense and Debris Flows**, 7 - 9 June 2006 Rhodes, Greece
For Details: www.wessex.ac.uk/conferences/2006/debris06/
6. **Water Pollution 2006: Eighth International Conference on Modelling, Monitoring and Management of Water Pollution**, 4 - 6 September 2006, Bologna, Italy
For Details: www.wessex.ac.uk/conferences/2006/water06/
7. **Sustainable Irrigation 2006: First International Conference on Sustainable Irrigation Management, Technologies and Policies**, 5 - 7 September 2006, Bologna, Italy
For Details: www.wessex.ac.uk/conferences/2006/irrigation06/
8. **3rd International Symposium on Integrated Water Resources Management on Reducing the Vulnerability of Societies Against Water Related Risks at the Basin Scale** in Ruhr-University Bochum, 26-28 September 2006.
For details: <http://conventus.de/water/index.php>

OBITUARY

SOHAM-Nepal extends the heartfelt condolence to Dr. Janak Lal Nayava, Chairman and life member of SOHAM-Nepal on the sad demise of his mother, Mrs. Dhana Laxmi Shrestha, who passed away on 21 November, 2005 at the age of 93 years.