CGMS

CGMS-34, NOAA-WP-10
Prepared by NOAA
Agenda Item: I/4
Discussed in WG1

STATUS OF THE IDCS

IN RESPONSE TO CGMS PERMANENT ACTION 01

NOAA-WP-10 provides a status report on the performance of the International Data Collection System (IDCS). Due to indefinite delays in the deployment of DAPS II, NOAA will be utilizing the Channel Interference Monitoring System (CIMS) in a stand alone mode. This system, which will enable better monitoring and evaluation of the international channels, has been evaluated and the final acceptance is due within the next few months. As previously noted, a conflict in the addressing scheme makes it difficult for the NOAA to include new addresses generated by EUMETSAT. Some of the addresses generated for the IDCS by EUMETSAT already exist in the NOAA database, assigned to US platforms that have been operating for decades. This conflict was not recognized by the NOAA delegation to the CGMS at the time that the scheme was agreed upon, and has been recognized as a serious problem in database coordination among the satellite operators. The NOAA plans to address this discrepancy after the completion and phase-in of DAPS II. Since DAPS-II has been indefinitely delayed, there is no current plan to address this issue.

Status of the IDCS

1. Introduction

Unfortunately, in this age of high technology data acquisition and dissemination, rural and technologically disadvantaged populations, often those most in need of hydro-meteorological and environmental information, do not always possess the means or training with which to access meteorological products already produced by national, regional, and various international organizations and government agencies.

NOAA supports Radio and Internet links for the Communication of Hydro-Meteorological and Climate Related Information (RANET). The RANET Project was designed specifically to address information access and support of rural communities. The Project is an international collaboration of meteorological and similar services working to improve rural and remote community access to weather, climate, and related information.

Originally conceived and started as a way to improve the technical capacities and networks of national hydro-meteorological services and extension agencies, the RANET project works in parts of Africa, within the Pacific, and is expanding into Asia. It receives support and technical advice to maintain and develop core systems and country activities from the University of Oklahoma, NOAA National Weather Service, NOAA's Climate Program Office , and the USAID Office of Foreign Disaster Assistance. Funding is currently provided by the USAID Office of US Foreign Disaster Assistance, NOAA, the Australia Bureau of Meteorology and Australian AID (AUSAID), the Meteorological Service of New Zealand, Ltd., and New Zealand AID (NZAID), the United Kingdom Meteorological Office, UNESCO/IOC, and others. However, in-country, local resources, and donation of commercial services supports the local RANET receive only sites.

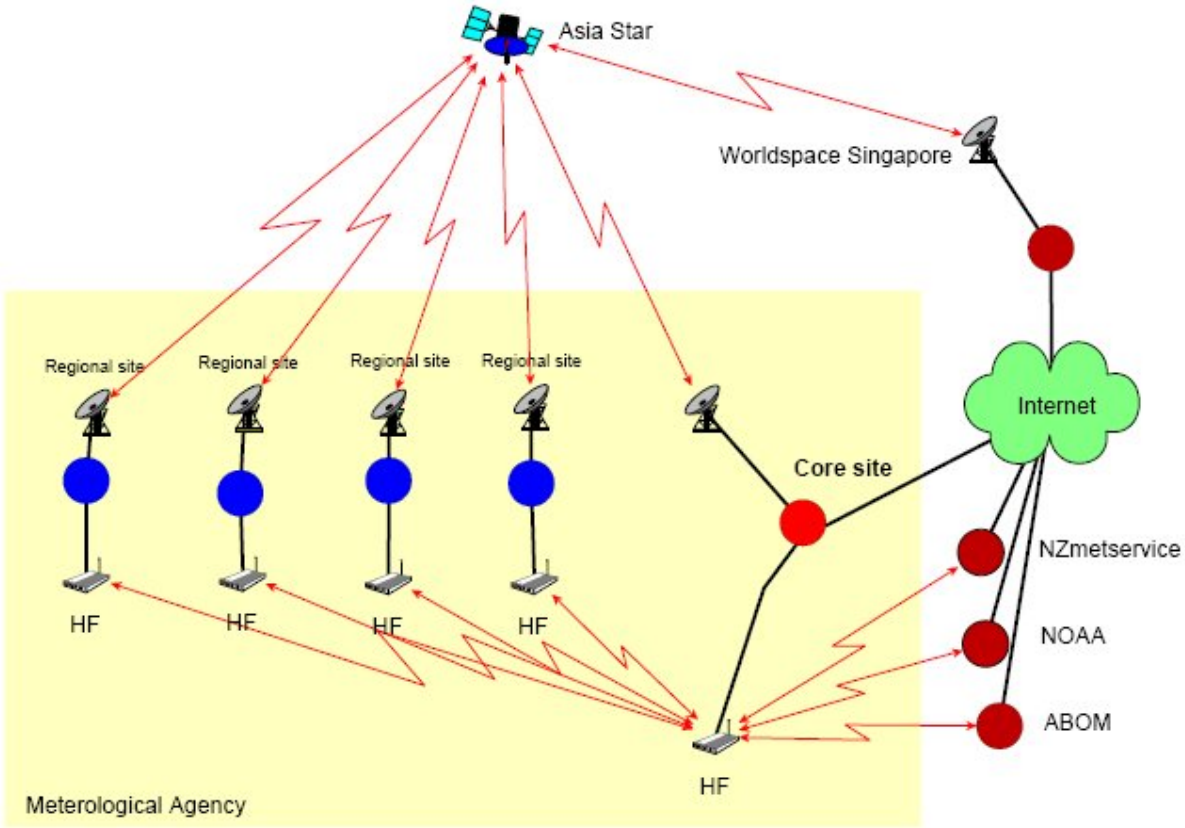
1.1 RANET Capabilities

"RANET has focused on a specific informational need and has trained local users how to apply the hydro-meteorological and environmental information. When the system is in place, customers notice tangible benefits to themselves within one season. They are better able to plan for and cope with climatic conditions, resulting in better planning, more efficient use of local resources, a better economy and a safer environment. But an additional, higher-level benefit is that they have learned how to obtain, value and apply practical information delivered via ICTs. This is a skill, a behavioural change that can help local users improve many other aspects of their livelihoods."

1.2 Communication in the Pacific

For many years, Met Services in the Pacific basin relied on the Aeronautical Fixed Telecommunications Network (AFTN). Then some Met Services were disconnected

from the AFTN, and had to switch to dial up Internet service to their local government ISPs to transmit their observations and receive critical meteorological bulletins. However, many of these ISPs do not have the resources to provide reliable service during the critical hazards threats when connectivity is needed most. In addition, few Pacific Island national meteorological service center's have the financial resources to support robust ISP services, and little capability to reach remote villages and communities within their countries. The lack of availability of power on many remote villages limits deployment/use of 24/7 communications systems because of power consumption. The remote outer Pacific Island communities also the lack of on-island technical resources, and methods/hardware to effectively deliver early warning messages from met/tsunami centres. In addition, remote Pacific Island need improved local village alert hardware (sirens, FM broadcast stations, etc.)



Pacific RANET Network Design

1.3 RANET Configuration.

RANET in Africa is used to disseminate information to small communities via WorldSpace satellite and Community FM radio; however, there is no reverse communications. In 2003, A RANET Pacific Steering Committed was formed, and recommended adding HF radio Digital -mail to fix this. Immediately applicable as a Pacific solution for solving remote communications for both methods (one-way and two-way) HF-email now complements the existing US Emergency Managers Weather and Information Network (EMWIN) systems.

Designed to provide information to remote communities, the RANET system receives information via WorldSpace satellites receivers and HF transceivers. The hydro-meteorological and environmental information as well as forecasts, warnings and watches data is relayed to local villages. Local RANET systems include a number of FM solar/hand cranked radios for community custody.

1.4 Benefits of Community-Based Networks

The community-based approaches foster local stewardship which improves network sustainability by distributing management and oversight of equipment and 'nodes. This approach provides a sense of ownership that increases interest in and use of climate, weather, and water information and gets information to larger user group and to those who need it most. Through partnership, RANET helps address other information and communication needs that might take precedence over climate, weather, and water issues; Over time this system improves local understanding of and participation in observing local conditions

RANET is now transitioning to be able to better support to disseminate critical hazard warning bulletins. NMHS in some countries can and do manage hazard warnings other than meteorological (e.g. tsunami). Several communications systems within the RANET network already have the capacity to provide an expanded warning service. Every system should provide a seamless and rapid throughput of critical warnings and watches (alerts) to end users in local communities.

1.5 Issues

To support an effective warning capability for each island nation, it is critical that these locales acknowledge their receipt of warnings and communicate their status back to warning centres. Currently, the WorldSpace satellite broadcast is receive only and the AsiaStar transmission is not received east of about 180^{o} meridian.

Often there is no backup system available at the time of an ISP equipment failure or at the time the main satellite equipment has to be "parked" due to strong winds (i.e., tropical cyclones). In addition, a number of island countries are near seismic source regions where an earthquake event may result in a local infrastructure failure, and local officials require resilient methods to receive critical warnings and act immediately to warn local populations.

1.6 Use of IDCS Channels for Emergency Applications

The National Weather Service, and the RANET-Pacific Steering Committee are working to ensure the reliability and integrity of RANET throughout the Pacific basin. This requires the development of low-cost, low power, user friendly technologies to support two-way communications on both sides of the international date-line. Also, the training must be comprehensive and the maintenance shall be minimal and uncomplicated.

Improvements in the RANET start with the ability to get the required information to the correct persons during an emergency. Given the coverage of the GOES-west spacecraft, the NWS spoke to NESDIS on the use of the DCS frequencies for emergency situations. In studies conducted by NESDIS and other federal agencies, the NWS learned that several methods for using these channels can be employed to meet their specific requirements. A GOES DCS channel was assigned to a user to transmit coded information to identify the urgent stages of an event. These messages are transmitted as needed or at scheduled intervals.

Advances in DCS technology allows users to transmit in a new format Code Division Multiple Access (CDMA) that enable messages to be sent over the normal Time division Multiple Access (TDMA) at any time without interference. CDMA would permit the NWS to increase it the use of the GOES DCS frequencies and make the capabilities to eventually upgrade to two-way communications.

In order to improve the local warning capability of the RANET, NOAA requests that the CGMS grant permission to temporarily utilize **4** unused international channels for transmitting acknowledgements of receipt of warnings and the status of post-warning events. A set of **4** channels, with a bandwidth of 1.5 khz, would provide NWS the opportunity to initiate acknowledgement communications with remote island nations. NOAA is also considering a 2-way capability to improve dissemination of watches and warnings to these same Pacific Island nations. NOAA plans to move quickly in the development and deployment of an interactive communications system to permit local communities to stay in touch with emergency authorities. Since these types of channels are under utilized and the need for emergency communications services in the Pacific basin is highly required, we feel the impact (and chances of interference) on nearby international channels should be minimized. NWS proposes to use the channels in realtime. It is suggested that a periodic review on the use and coordination with other potential users be addressed at regular intervals.

2. STATUS OF IDCS

This document presents a status report on the performance of the International Data Collection System (IDCS). Due to indefinite delays in the deployment of DAPS II, NOAA will be utilizing the Channel Interference Monitoring System (CIMS) in a stand alone mode. This system, which will enable better monitoring and evaluation of the international channels, has been evaluated and the final acceptance is due within the next few months.

As of the beginning of April 2004, the NOAA database contained only 177 International DCPs (IDCP) active on 12 of the 33 international channels:

Channel #	06	07	13	13	14	15	16	17	18	20	27
# of IDCP	20	103	29	2	32	41	7	6	22	8	18

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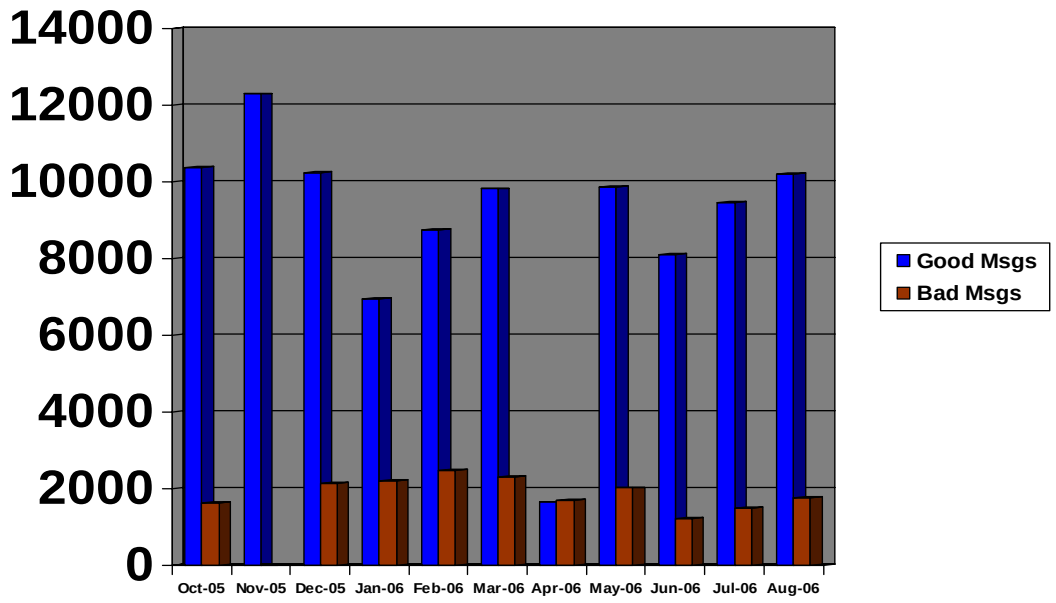
The graph below is a summary of the good and bad messages transmitted on the IDCS channels. During the months of October through March, the totals show a steady increase.



3. INTERFERENCE TO THE IDCS

NOAA is preparing for the installation and checkout of its new DCS Automatic Processing System II. However this is system has been indefinitely delayed. Therefore, several subsystems that were scheduled to be utilized to monitor international channel activity will not be available. Therefore, activities associated with monitoring the IDCS for interference are available through the heritage (1989)

Data Collection System. However, a new system that will utilized card-based spectrum analyzers is under contract and will be tested at the Wallops CDA Station by the end of the year.

4. CONSOLIDATED LIST OF IDCS ALLOCATIONS

There have been very few new allocations of IDCPs within the past year.

5. CONCLUSION

CGMS members are invited to take note of the status and performance of the IDCS at www.dcs.noaa.gov.

1