Replacement Hardware for National Lightning Detection Network (NLDN) Internet Data Distribution (IDD)

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After seven years of faithful service our NLDN data ingest and distribution machine was showing signs of age and needed to be replaced. When we installed this machine we were feeding NLDN data to about 15 universities, this had grown to over 70 universities and the old machine could no longer keep up with the load during lightning intensive periods.

In April 2003 the Department of Earth and Atmospheric Science, University at Albany, State University of New York submitted a Unidata Community Equipment Award Proposal entitled "Replacement Hardware for National Lightning Detection Network (NLDN) Internet Data Distribution (IDD)." This proposal was funded in July 2003, and the funds reached the University in September 2003. We placed the order for the Sun equipment (Sunfire 280R server with 2 cpu and 4 GB RAM) as soon as the money was available. The system was delivered in early November 2003, and was up and running shortly thereafter. Once the NLDN ingestion and IDD software were installed we tested it internally for several weeks to insure stability. In January 2004 we requested that sites receiving the NLDN feed start switching over to the new machine. A reminder was sent in March 2004, most downstream sites have switched over to the new machine and no troubles have been reported. We plan to shut off the old machine on May 1st 2004.

NLDN data has wide potential use in atmospheric science and related research and education. Lightning data is a natural augmentation to other atmospheric data. For example, lightning data can be overlaid with satellite imagery to depict regions of electrical activity. Figure 1 shows an example of combining lightning data with other operational and research data. Likewise, data from the WSR-88 radar network can be combined with lightning data to provide additional insights into storm formation, propagation, microphysical processes, and intensity changes. The University at Albany is currently configured to make this data available to 76 universities. Even after making NLDN data freely available to other universities for 7 years, we have likely only touched the surface of its potential role in education and research. The new computer will allow us to continue adding downstream nodes to the IDD distribution of NLDN data, and ensure that the data reaches all sites in a timely fashion.

Without funding from the Unidata Community Equipment Grant program we would have not been able to continue making lightning data available to other Unidata affiliated universities. We are extremely grateful for this support. Any Unidata affiliated university interested in receiving NLDN data for educational and research purposes can request it by sending e-mail to support@atmos.albany.edu.

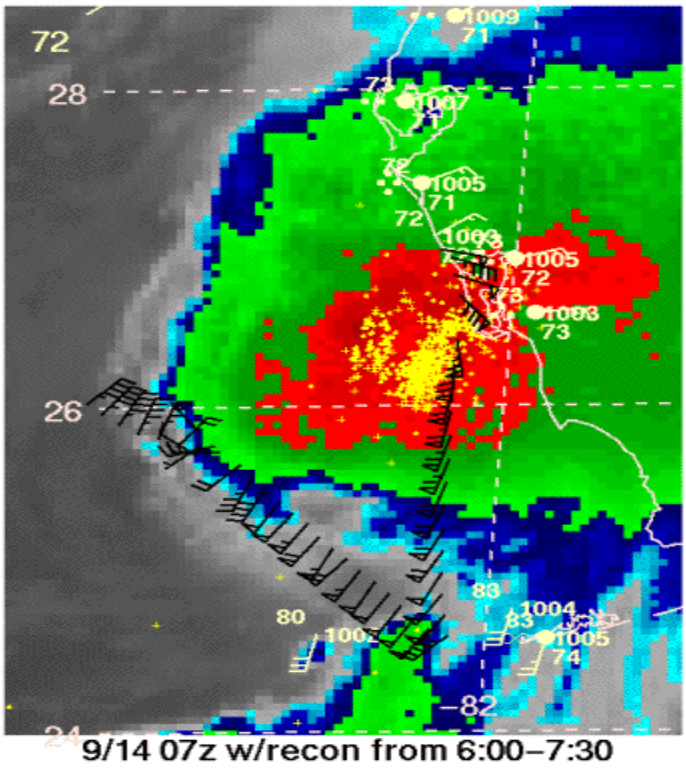


Figure 1. Infrared satellite image at 0700 UTC 14 September 2001, with aircraft reconnaissance winds (black) and conventional surface winds (white), and one hour of lightning locations (yellow dots). Reconnaissance winds are shown from 0600-0730 UTC, and lightning from 0530-0730 UTC.