

PALMER STATION MONTHLY SCIENCE REPORT
December 2006



Biscoe Island Gentoo Penguins with chicks under Mt Williams
Photo provided courtesy Kristen Gorman 2006

NEWS FROM THE LAB

Phil Spindler, Assistant Supervisor Laboratory Operations

December has brought increased activity all around Palmer Station. The arrival of a King Penguin on Torgersen Island began this festive month with royal flair- a beautiful site seldom seen this far south. Two cruise ships and a few yachts visited the area in addition to two port calls by the *ARSV Laurence M. Gould*. Warm and calm weather fostered productive field work, hatching chicks, and active calving from the surrounding glaciers. In Arthur Harbor, one calving was so large it created sizable waves crashing on shore near station. We wrapped up the month with beautiful sunny weather and a wonderful feast for the holidays.

The local wildlife activity grew as well. In addition to more whale sightings in the area, zodiacs in the field were frequently surrounded by porpoising penguins. To the excitement of most, the first phytoplankton bloom of the season occurred mid-December. Christmas came early for the Prey component of LTER as schools of krill were abundant, and they filled the aquarium tanks lively little swimmers. Flocks of seabirds were frequently seen feeding atop the water indicating the presence of krill schools.

David Ruth finished his *Antarctic Ice into Cast Glass Sculpture* project and took several molds of beautiful ice shapes and textures with him. However, he left behind a departing gift to the station- a small glass sculpture he cast here from a mold of local ice.

Over the month we had 13 members in 6 science projects accomplishing regular sampling and analysis in addition to preparing for the upcoming LTER cruise in January. The Palmer Research Associate continued her regular duties while preparing and fine-

tuning satellite images she will provide to projects aboard the LTER cruise. RPSC support personnel (23) were busy with projects around station from general maintenance to direct science support.

Thank you for all your support. From all of us at Palmer Station, we hope your holidays were cheerful and wish you all the best in the new year. We are looking forward to continuing a productive and enjoyable field season.

DECEMBER WEATHER

Christina Hammock, Research Associate

Summer was in full force by the end of December, with lots of sunshine, warm temperatures, less wind, and no lasting snow. The windiest gust of 50 knots was an anomaly in the calm latter half of the month.

Brash continues to blow in and out of the area surrounding Palmer station in increasingly smaller pieces. The glacier calves often and much of the bergs and bergy bits around station originate from Arthur Harbor.

The coldest daily low temperature was on the 10th at -1.9C, while the warmest high was on the 29th at +8.5C. The last week of the month was particularly warm with several consecutive days with highs near or above +7C. The average temperature for the month was 2.3 C, which is three degrees warmer than last month. Palmer received 26.9 mm of melted precipitation, but only 8 cm of snow.

The following projects conducted research at Palmer Station during December:

B-013-P: PALMER, ANTARCTICA LONG-TERM ECOLOGICAL RESEARCH PROJECT: CLIMATE MIGRATION, ECOSYSTEM RESPONSE AND TELECONNECTIONS IN AN ICE-DOMINATED ENVIRONMENT: SEABIRD COMPONENT

Dr. William R. Fraser, Principal Investigator, Polar Oceans Research Group, Sheridan, MT

Personnel on station: Jennifer Blum, Kristen Gorman, Hannah Lucas

Weather continued to be favorable for the month of December, with only one full field day missed due to high winds. We continued our Adelie reproduction monitoring, obtaining hatch dates and indicator counts on local islands as well as on Dream and Biscoe Islands. Gentoo penguins and active nests were counted on Biscoe. Additional counts related to our snow fence study on Dream were also conducted. Depredated Adelie eggs were noted on all islands. Samples were salvaged for isotope analysis. Snow depth transect measurements continued on all 5 local islands with penguin colonies, though snow has now melted off all of the transects except for a few remaining points on Litchfield Island.

Our skua work continued this month, as we began monitoring hatches of Brown Skuas on local islands as well as on Dream and Biscoe Islands. Our South Polar Skua study on Shortcut intensified with recording nest initiation/lay dates for the entire island, and banding new breeders. Blue-eyed Shags hatched in early December and the censusing continued on Cormorant Island. Satellite transmitters were deployed on Giant Petrels starting at the beginning of the month, successfully returned, and have been redeployed numerous times. Our all-island census of Giant Petrels began in mid-December, and new breeders were banded. The Giant Petrel nest monitoring study on Humble Island began at the end of December.

Our monitoring of marine mammals continued this month and was highlighted by a few sightings of Minke whales in the Palmer area as well as near Dream Island, and leopard seals feeding around Torgersen Island. Labwork has continued with the skua scat analysis, as well as some sample preparation for isotope analysis.

RPSC has given great support this month; numerous folks have assisted with tasks on station as well as providing occasional field assistance. Steve Barten continues to provide prompt and thorough boating support. Tracey Baldwin and Bob Farrell have been very accommodating in dealing with various issues. The stellar IT and COMMS crew continues to be jovial and willing to help out at any hour of the day. Many other RPSC personnel have happily accommodated other requests we've had this month, particularly related to our LTER cruise preparations; we greatly appreciate their support.

B-016-P AND B-032-P PALMER, ANTARCTICA LONG-TERM ECOLOGICAL RESEARCH PROJECT: CLIMATE MIGRATION, ECOSYSTEM RESPONSE AND TELECONNECTIONS IN AN ICE-DOMINATED ENVIRONMENT: PHYTOPLANKTON ECOLOGY AND BIO-OPTICAL COMPONENTS

Dr. Maria Vernet, Principle Investigator, Scripps Institution of Oceanography (B-016-P)
Dr. Raymond Smith, Principle Investigator, University of California, Santa Barbara (B-032-P)

Personnel on station: Tristan Wohlford (016), Austen Thomas (032 until 12/10), Ryan Burner (016), Julie Schram (032 since 12/10), Katherine Haman (032 until 12/10), and Tyler Thigpen (032 since 12/22)

We were able to sample both Station E and Station B eight times in December, although high winds during the first couple of weeks forced us to shift our sampling schedule slightly. We sampled both our offshore site, Station E, and our inshore site, Station B, on 5, 7, 12, 14, 18, 21, 26, and 29 December. Sampling included filtration for particulate carbon and nitrogen, determination of discrete chlorophyll a levels by fluorometry, pigment analysis using high performance liquid chromatography, measurement of dissolved inorganic nutrients, and estimation of primary production. CTD (Conductivity and Temperature outfitted with a transmissometer and fluorometer) and PRR (Profiling Reflectance Radiometer) data were also collected in the water column.

We saw the first bloom of the season starting in mid-December with the amount of phytoplankton in the water column more than tripling from $83\mu\text{g chlorophyll m}^{-2}$ to $290\mu\text{g chlorophyll m}^{-2}$ at Station B and from $76\mu\text{g chlorophyll m}^{-2}$ to $227\mu\text{g chlorophyll m}^{-2}$ at Station E. The start of the bloom, 18 December, actually occurred at the same time as the first observed bloom of the 0506 season. While the bloom had begun to decline at Station B by 29 December, chlorophyll levels at Station E were still at bloom levels throughout the end of December. Primary production levels were similar at both stations throughout the month and more than doubled from 1340 mg C m^{-2} at the beginning of the month to 2877 mg C m^{-2} during the bloom.

We also conducted another 4 experiments to determine the grazing impact of the microzooplankton community on the phytoplankton. Although grazing rates were determined to be zero in the first half of December, rates more than doubled over the course of the bloom from 0.12 d^{-1} on 20 December to 0.25 d^{-1} on 28 December.

B-016 and B-032 continue to thank FEMC for all the hard work they've done for us. We would also like to thank boating coordinator Steve Barten for helping us with all of our zodiac issues and electronics technician Curt Smith for all of his help with keeping our computers and software running smoothly. Tracey Baldwin, Phil Spindler, and Ken Keenan have continued to provide stellar assistance with all laboratory issues as well. Team logistics, Cathy Borowsky and Bob Devalentino, have been invaluable in their help with coordinating movement of our stuff on and off the Gould. Thanks also to the whole of station for a great Christmas holiday!

B-028- PALMER, ANTARCTICA LONG-TERM ECOLOGICAL RESEARCH PROJECT: CLIMATE MIGRATION, ECOSYSTEM RESPONSE AND TELECONNECTIONS IN AN ICE-DOMINATED ENVIRONMENT: PREY COMPONENT.

Robin Ross and Langdon Quetin, Principle Investigators, Marine Science Institute, University of California at Santa Barbara

Personnel on station: Langdon Quetin (team leader/PI), Kelly Moore and Alex Lowe (Marine Science Institute, University of California at Santa Barbara)

Research Assistant, Alex Lowe, arrived on 9 December. Since then the three of us have had our hands full. The size and number of krill schools observed have steadily increased, raising expectations for the summer sampling season. Sampling has continued using nets and two trawl techniques: a horizontal tow and plummet tow. The plummet tow is a new and successful method for us that decreases the tow time, keeping krill in better condition.

Three growth rate experiments have been completed to date, in which the size of individuals ranged from 18 to 40mm, and the inter-molt period was about 12 days. The presence of many krill schools has enabled us to begin whole body fluorescence

measurements (an indicator of recent feeding history) of captured individuals. We have also been collecting water samples for chlorophyll analysis and conducting CTD casts inside and outside of the schools.

LTER acoustic transects were conducted throughout December with few obstacles. A couple transects had to be aborted due to brash ice, but all were able to be redone the next day. The abundance of krill this year has kept us very busy in the lab and in the field. We would like to thank the other research teams for their assistance in locating krill schools through bird and/or whale activity, and therefore making our sampling effort much more efficient. We continue to be very well supported by the RPSC staff.

B-045-P PALMER, ANTARCTICA LONG-TERM ECOLOGICAL RESEARCH PROJECT: CLIMATE MIGRATION, ECOSYSTEM RESPONSE AND TELECONNECTIONS IN AN ICE-DOMINATED ENVIRONMENT: MICROBIAL/BIOGEOCHEMISTRY COMPONENT

Hugh Ducklow, Principal Investigator, School of Marine Science, The College of William and Mary

Personnel on station: Matthew Erickson (Virginia Institute of Marine Science), Kristen Myers (VIMS) and Nikki Middaugh

During the month of December, we have completed one nutrient addition experiment along with sampling stations B and E weekly, weather permitting. For the 10 day nutrient addition experiment, 50 liter carboys were filled with surface water from Station B and incubated in the -1.5 °C cold room. Carbon (glucose) and nitrogen (ammonium chloride) are added several times over the course of the experiment to specific carboys and each carboy is sampled daily to monitor the affects of these additions on the bacterial community. The bacteria response was different from two previous nutrient addition experiments due to the abundance of grazers. These results will help in conducting grazing pressure/nutrient addition experiments for the 2007-2008 season at Palmer Station. Water is filtered through Sterivex cartridges to collect the community DNA, than frozen until analysis can be performed back in the states to analyze the affects of the nutrient additions on the community. We are planning one more experiment for the season, in January, to coincide with the increase in phytoplankton biomass seen yearly at Palmer Station.

We would like to thank Palmer RPSC personnel for all of their support this month. Their continuous and tireless effort allows for such complex science to be completed in a remote field station.

B-114-P: PALMER STATION, ANTARCTICA: DISTRIBUTION, PHYLOGENETIC AFFINITIES, AND ECOLOGY OF AMMONIUM-OXIDIZING BACTERIA IN THE PALMER LTER STUDY AREA.

Dr. James T. Hollibaugh, Principal Investigator, School of Marine Science, University of Georgia

Personnel on station: Nicole Middaugh, Janet Barwell-Clarke

In the month of December, sampling and measurement continued without interruption due to great weather and excellently working spectrophotometers. While continuing to measure nitrite and ammonium levels from our Temperature Incubation and Ammonium Oxidation experiments in the lab, Janet and I were able to collect brown sea ice for analysis of bacterial diversity. We used a zodiac to find some brown ice amongst the pack ice that drifted into the Palmer boating vicinity, took it back to station, and melted it using 0.22 micron filtered seawater. It was then run through a Sterivex filter and frozen at -80C for later analysis at UGA. The Temperature Incubation experiment has been measured biweekly and has revealed an interesting increase in nitrite concentration levels. These results, however, are still inconclusive. Measurements for our Ammonium Oxidation experiment have shown decreased levels of ammonium in certain sample bottles, which is consistent with our nitrite measurements. However, more measurements are needed before any conclusions can be made.

Janet Barwell-Clarke redeployed on December 11 and returned to North America. With only one team member left on station, measurements for experiments had to be reduced from two to three times a week to once a week. The first additional experiment that we started in November, a toxicity experiment, was conducted to test the affect of the ammonium spike on the ammonium oxidizing bacteria in the seawater. We have measured the concentration of nitrite throughout December and still have seen no change in sample concentration. Measurements will continue throughout the month of January.

The last week of the project, from December 18 through December 23, was spent taking down the lab, packing experiments to be shipped to UGA, and finishing any last minute odds and ends. The project officially ended on December 23, 2006.

We would like to thank all RPSC personnel on station for their support throughout the entire length of this project, especially Steve Barten, Ken Keenan, and Phil Spindler, without whom our project would not have been so successful.

**PALMER STATION RESEARCH ASSOCIATE MONTHLY REPORT
December 2006**

G-295-P GPS CONTINUOUSLY OPERATING REFERENCE STATION.

Bjorn Johns, Principal Investigator, UNAVCO

The Research Associate operates and maintains on-site equipment for the project. Throughout the month, 15-second epoch interval GPS data files were collected

continually at station PALM, compressed, and transmitted to the NASA/CDDIS in Reston, VA.

The GPS base station continues to operate using the spare base station receiver with apparently normal data, but unconfirmed configuration settings. The new project PI was contacted regarding future plans for the system and the present configuration. Plans are underway with the new PI to change the base station receiver from the obsolete Ashtech Z-12 backup to the new Trimble NetRS, which is already running for the purpose of enabling local differential GPS surveys. Data was sent manually after a couple routine computer restarts after Windows Update installations.

The roving GPS system and its associated base station operated well throughout the month.

G-090-P GLOBAL SEISMOGRAPH NETWORK (GSN) SITE AT PALMER STATION.

Rhett Butler, Principal Investigator, Incorporated Research Institutions for Seismology (IRIS)

The Research Associate operates and maintains on-site equipment for the project. Station PMSA is one of more than 143 sites in the GSN monitoring seismic waves produced by events worldwide. Data files are recorded to tape and also sent real-time to the U.S. Geological Survey (USGS).

The system operated well throughout the month. Documentation was updated to reflect the change of no longer using filters on the Digital Processor unit. Project recommended not conducting a vault visit after it was noted that winds are affecting two of the seismometers.

O-202-P ANTARCTIC METEOROLOGICAL RESEARCH CENTER (AMRC) SATELLITE DATA INGESTOR.

Charles Stearns, Principal Investigator, University of Wisconsin

The Research Associate operates and maintains on-site equipment for the project. The AMRC SDI computer processes satellite telemetry received by the Palmer Station TeraScan system, extracting Automated Weather Station information and low-resolution infrared imagery and sending the results to AMRC headquarters in Madison, WI.

The system is running normally. Automatic transfer of locally decoded data to the RA computer has been implemented. A program has been written to filter and display locally relevant AWS data that was decoded by the project computer.

O-204-P A STUDY OF ATMOSPHERIC OXYGEN VARIABILITY IN RELATION TO ANNUAL TO DECADAL VARIATIONS IN TERRESTRIAL AND MARINE ECOSYSTEMS.

Ralph Keeling, Principal Investigator, Scripps Institution of Oceanography

Air samples are collected on a semiweekly basis by the Station Physician.

The goal of this project is to resolve seasonal and interannual variations in atmospheric O₂ (detected through changes in O₂/N₂ ratio), which can aid in determining rates of marine biological productivity and ocean mixing. The results are also used to help determine the terrestrial and oceanic distribution of the global anthropogenic CO₂ sink. The program involves air sampling at a network of sites in both the Northern and Southern Hemispheres. Palmer Station is especially well situated for resolving signals of carbon cycling in the Southern Ocean. Samples taken from the station are sent to Scripps where the analysis of O₂ and CO₂ content takes place.

O-264-P COLLECTION OF ATMOSPHERIC AIR FOR THE NOAA\CMDL WORLDWIDE FLASK SAMPLING NETWORK.

David Hofmann, Principal Investigator, Climate Monitoring and Diagnostics Laboratory, National Oceanic and Atmospheric Administration

The National Oceanic and Atmospheric Administration (NOAA) Climate Monitoring and Diagnostics Laboratory continues its long-term measurements of carbon dioxide and other climate relevant atmospheric gases. The Palmer Station air samples are returned to the NOAA laboratory for analysis as part of NOAA's effort to determine and assess the long-term buildup of global pollutants in the atmosphere. Data from this experiment will be used in modeling studies to determine how the rate of change of these parameters affects climate. Air samples are collected on a weekly basis by the Station Physician.

O-283-P ANTARCTIC AUTOMATIC WEATHER STATIONS (AWS).

Charles Stearns, Principal Investigator, University of Wisconsin

The Research Associate monitors data transmissions for the project. AWS transmissions from Bonaparte Point were monitored using the TeraScan system. AWS data received was also forwarded to UCSB for B-032-P (Smith).

The Bonaparte Point AWS station stopped transmitting data mid-month. Cycling of the power on two different occasions did not bring station back up. Basic troubleshooting did not reveal a power or antenna problem, and a status was forwarded to the PI. A replacement station for Bonaparte Point is being prepared for shipment to Palmer Station soon. Project will provide instructions for further troubleshooting of failed station or waiting for the installation of the new station.

A-306-P GLOBAL THUNDERSTORM ACTIVITY AND ITS EFFECTS ON THE RADIATION BELTS AND THE LOWER IONOSPHERE.

Umran Inan, Principal Investigator, Stanford University

Stanford University has been operating a Very Low Frequency (VLF) receiver antenna at Palmer Station since the 1970's. By receiving naturally and manmade signals between 1 and 40 kHz, the Stanford VLF group is able to study a wide variety of electromagnetic phenomenon in the ionosphere (uppermost layer of the atmosphere ionized by solar radiation) and magnetosphere (the area surrounding the earth dominated by the Earth's magnetic field and particles trapped by it. Many of these studies relate to the energetic releases associated with lightning. For example, Palmer Station's unique location enables it to pick up small bits of radiation from lightning strikes as far away as Africa, the USA, or the Pacific Ocean.

VLF data acquisition computers were restarted a few times during the month after routine Windows Update installations. A few short periods of anomalous data were reported to the project. Extra periods of interesting data were archived. Windows Explorer problems on one project computer necessitated two computer restarts, which did not result in any data loss.

The VLF antenna cable was serviced several times. All poles on the bottom portion of the glacier have melted out and the cable has been placed laying over the downed poles. New holes were drilled for a melted-out junction box pole and adjacent poles. A data wash-out prompted investigation of the preamp box, cable, and junction box connectors. Corrosion was found on one junction box connector and plans were made to replace the connector during the next site visit, provided the problem does not return. An inventory of the required connectors for this replacement was conducted.

Address for retrograde cargo was updated.

T-312-P TERASCAN SATELLITE IMAGING SYSTEM.

Dan Lubin, Principal Investigator, Scripps Institution of Oceanography

The Research Associate operates and maintains on-site equipment for the project. Throughout the month, the TeraScan system collected, archived, and processed DMSP, NOAA, and ORBVUEW-2 satellite telemetry, capturing approximately 25-30 passes per day. A weekly 85GHz SSM/I ice concentration image was produced and transferred to UCSB for B-032-P (Smith).

The system operated well throughout the month. A few passes failed to be captured during the month and the problem was fixed after rebooting the data acquisition computer twice. Automatic post-processing of locally acquired satellite images was further modified to produce images for upcoming LTER cruise. Disk was cleared and organized to make space for new LTER images. Suite of new LTER images were produced and

sent to LTER scientists for approval and feedback. Terascan overlays were produced for use on daily MODIS images of Palmer station and LTER grid.

System UPS was replaced with a new model that retains the monitoring capability that allows for a graceful system shutdown when the UPS batteries run low. The new UPS was successfully tested and showed an even longer lasting time than the last UPS. Old UPS and obsolete printer were retrograded.

A-357-P EXTENDING THE SOUTH AMERICAN MERIDIONAL B-FIELD ARRAY (SAMBA) TO AURORAL LATITUDES IN ANTARCTICA

Eftyhia Zesta, Principal Investigator, University of California Los Angeles

The three-axis fluxgate magnetometer is one in a chain of longitudinal, ground-based magnetometers extending down though South America and into Antarctica. The primary scientific goals are the study of ULF (Ultra Low Frequency) waves and the remote sensing of mass density in the inner magnetosphere during geomagnetically active periods. Palmer's magnetometer is also a conjugate to the Canadian Poste de la Baleine station, allowing the study of conjugate differences in geomagnetic substorms and general auroral activity. The station Research Associate maintains the on-site system.

The system performed well throughout the month. Data from 2005 was archived and set to project to facilitate clearing of data acquisition computer disk. FTP connectivity problems were diagnosed and no data or functionality was affected during this time.

B-390-P: THERMO-SALINOGRAPH

Vernon Asper, Principal Investigator, University of Southern Mississippi

Sea water is pumped continuously through a thermosalinograph (TSG) sampling system, recording the temperature, conductivity, salinity, and fluorescence. The real-time data, including graphs and web camera images of the ocean in the vicinity of Palmer Station, are compiled by a local server into web page format and relayed to a mirror site at Woods Hole Oceanographic Institute, which is a collaborator in the project. The URL for the WHOI mirror site is <http://4dgeo.whoi.edu/tsg/>.

The system has operated well throughout the month. Small periods of unavailable data on the remote TSG website were reported to PI. Data disturbances due to sea water intake maintenance were reported to PI. The fluorometer was cleaned due to buildup of seawater organisms on tubes. Late in the month, data quality was affected and project was informed.

T-513-P: ULTRAVIOLET (UV) SPECTRAL IRRADIANCE MONITORING NETWORK (UVSIMN)

Charles Booth, Principal Investigator, Biospherical Instruments, Inc

The Research Associate operates and maintains on-site equipment for the project. A BSI SUV-100 UV spectroradiometer produces full sky irradiance spectra ranging from the atmospheric UV cutoff near 290nm up to 605nm, four times per hour, while the sun is above the horizon. A BSI GUV-511 filter radiometer, which has four channels in the UV and one channel in the visible for measuring Photosynthetically Active Radiation (PAR), is located next to the SUV-100. Data from the GUV-511 instrument is made available on a daily basis on the project's website at <http://www.biospherical.com/nsf>.

The UV monitor operated normally throughout the month.

T-998-P: IMS RADIONUCLIDE MONITORING

Michael Pickering, Principal Investigator, General Dynamics

The International Monitoring System (IMS) radionuclide sampler is part of the Comprehensive Test Ban Treaty (CTBT) verification regime. The automated Radionuclide Aerosol Sampler and Analyzer (RASA) unit pumps air continuously through a filter for 24 hour periods, collecting particulates in the .2-10 micron range. The filter is then tested for particulates with radioisotope signatures indicative of a nuclear weapons test. The station Research Associate operates and maintains the instrument.

The system operated normally throughout the month with only one brief communication problem that resulted in no data loss. The communications failure was traced to disconnection of VPN tunnel at RPSC in Denver. Network administrators were informed and fixed the problem. Filter samples were prepared for shipment and archival. A special request for a sample to be sent to a laboratory was carried out successfully using a new logistical procedure. Shipping information for special samples was acquired and posted. The annual change of six filter rolls was completed using the provided procedure. Some splices failed during filter advancement and were repaired successfully with no affect on normal automatic operations. Several documentation updates were conducted for many procedures.

TIDE GAGE

The Research Associate operates and maintains on-site equipment for the project. Tide height, seawater temperature, and salinity are monitored on a continual basis by a gage mounted at the Palmer Station pier.

The tide gauge operated fine throughout the month on the obsolete Windows 98 operating system.

METEOROLOGY

The Research Associate acts as chief weather observer, and compiles and distributes meteorological data. At the end of the month a summary report is prepared and sent to interested parties. Weather data collected using the automated electronic system is archived locally and forwarded twice each month to the University of Wisconsin for archiving and further distribution. Synoptic reports are automatically generated every six hours by the Palmer Meteorological Observing System (PalMOS) and emailed to the NOAA for entry into the Global Telecommunications System (GTS).

Isobaric charts were sent to R/V Laurence M. Gould in support of the current cruise. Weekly weather data summaries were sent to the Antarctic Sun.

MAWS and PalMOS data acquisition computers were restarted a few times throughout the month after routine Windows Update installations. PalMOS data outage occurred for approximately 2.5 hours due to inadvertent disconnecting of communications cable. Outage did not affect weather synoptic. Quarterly inspection of PalMOS instruments on tower was completed. Anti-seize was added to PalMOS electronics enclosure fasteners that have been stripping out. Hand-held humidity meter was used to verify PalMOS humidity readings because PalMOS and MAWS humidity readings differ significantly. MAWS temperature and humidity sensor was inspected and showed no signs of problems. The password for user "weather" was changed by a network engineer and thus had to be changed on PalMOS and MAWS computers, requiring a brief logout. Password change caused ftp of data to SPAWAR to fail for a few days before password was updated in the autoscheduler.