



Alaskan Waters: Collecting Ships Observations

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Another pair of eyes is always advantageous. It is the main reason why many police officers work in pairs, airliners have two pilots, and indeed, many vessels double the watch for conducting hazardous evolutions such as entering port or restricted waters. So too, lies the relationship between the vessel crews and meteorologists. A second set of eyes measure the effectiveness of computer models in rapidly changing dynamic weather patterns. Masters, mates and seamen all assist in the forecast process by providing the “ground truth” that is vital to a good forecast. Meteorologists keep the forecast on track with the help of the vessel crews. Recruitment of these eyes has a very high priority within the various offices in the Alaskan Region.

Alaska has the largest coastline of any U.S. state with numerous bays, passes and channels. Forecasting correct weather conditions is challenging at best. There are very few shipping lanes into the region, and this has led to very sparse weather observations in the past. However, there is a large amount of coastal traffic in the form of tugs, cruise ships, ferries, oil/gas platforms and fishing vessels. These numerous

“second set” of eyes are used to keep the forecasts current and on track. Most observations are collected via High Frequency Single Side Band Radio, SEAS software, e-mail or by telephone.

Alaska Region has three, part-time Port Meteorological Officers located in Anchorage, Kodiak and Valdez. The responsibilities of these offices include recruiting and training ship’s personnel in reporting weather observations, principally with the SEAS software systems. More than 200 ship visits were made in pursuit of these duties during 2001. In addition, Alaska has three forecast offices, in Anchorage, Juneau and Fairbanks, and ten Weather Service Offices. Forecast Offices issue warnings and forecasts twice daily with updates. Meteorologists occasionally ride ships to familiarize themselves with ship operations in sea conditions. The Weather Service Offices located in Annette Island; Barrow; Bethel; Cold Bay; King Salmon; Kotzebue; McGrath; Nome; St. Paul and Yakutat also visit ships, collect weather observations, furnish training, and provide barometer calibration services. These offices conducted another 100 visits in an effort to reach our “at-sea” customer base.

Efforts by the Region to recruit ships began in the mid 1970’s. Ms. Peggy Dyson of Kodiak had an informal grapevine that was used to pass forecasts over HF/SSB radio and collect reports with at sea conditions. Afterward, she would type the observations and send them over landlines to the Forecast offices. Later, this effort was expanded to other National Weather Service Offices. In 1999, tests were conducted by Weather Service Office Kodiak to report limited amounts of data in the ship’s synoptic code. The shift to use the synoptic code was needed to modernize the reporting process. It allowed this valuable source of information directly into model analyses and integrated into the various office display equipment used in the NWS Forecast Offices. Initially, the vessels only called on data for pressure, wind, sea height and air temperature. The result was a resounding success, with the Marine Prediction Center and World Meteorological Organization getting approximately 3000 ship observations in a region normally void of reports. In 2000, efforts were sought by the Alaska Marine Program Manager, Mr. Greg Matzen, to secure a programmer to help automate the reporting process. Ms. Rose Cunningham, a programmer in the Alaskan Region



HQ, was assigned the task of developing a software program that would encode data reported in a limited format. The task received technical assistance in scope and design from the author in Kodiak. While the SEAS software was designed for use by one vessel and report via Satellite, the BBXX encoder was designed to report multiple ship reports through landlines. During 2000 and 2001, some 9500 and 12,000 ship observations were encoded and transmitted to the Marine Prediction Center respectively. These observations ranged from SE Alaska's inner channels to the Bering Sea and across the north slope of Alaska in the Beaufort Sea.

With the advent of the SEAS 2000 software, an effort was started to collect ship observations directly from the vessels involved with reporting the weather. Smaller vessels, such as tugs and fishing vessels are equipped with an e-mail capability that allows messages to be sent via Inmarsat-C. However, the message has to be in ASCII text. The new SEAS software has this capability incorporated into this. To exploit this capability, an e-mail address was established in Alaska Region HQ to accept the reports. They are then sent to Marine Prediction Center via landline. In May 2001 Mr. Michael Daigler, Chief Mate aboard the tug **Northern Spirit**, and the author discussed a variety of ways to increase the number of reports directly to forecasters in Alaskan waters. The new SEAS software was mentioned, including the fact that the NWS was looking

for a tug to test this capability. Michael asked to have the software sent to him on a CD, along with the accompanying text for taking observations. Installation and training was conducted over the phone and placed on Michael's

topography of the land greatly influences the weather conditions, especially the wind direction and speed as well as sea conditions. The following month Mr. Bernie Meier, Master of the Crowley Marine Services tug **Sinuk**, was



Northern Spirit receives award - Superior VOS Performance.

personal laptop. Observations were taken, encoded and sent through Inmarsat-C using the ship's account with Stratosmobile. Mr. Daigler continued sending one observation a day for the remainder of the month, giving him a direct communication with the forecasters in the Juneau Forecast Office. **Northern Spirit's** observations took on a great deal of importance, as the tug spends nearly all its time in the inner channels of Southeast Alaska, from Ketchikan to Haines. In these tight and congested waters, the

headed to the northern coast of Alaska in support of the resupply effort of the oil industry. **Sinuk** and several more Crowley tugs provided a constant stream of data of North Slope weather conditions.

Observations from smaller coastal craft have also provided many benefits. The smaller craft tend to move outside the shipping lanes providing valuable data in these isolated coastal areas. These vessels tend to be located within 30 feet of the water's surface and provide a closer view of the sea and swell heights. Working in the near coastal zone also provides valuable information



Tug SINUK



Northern Spirit



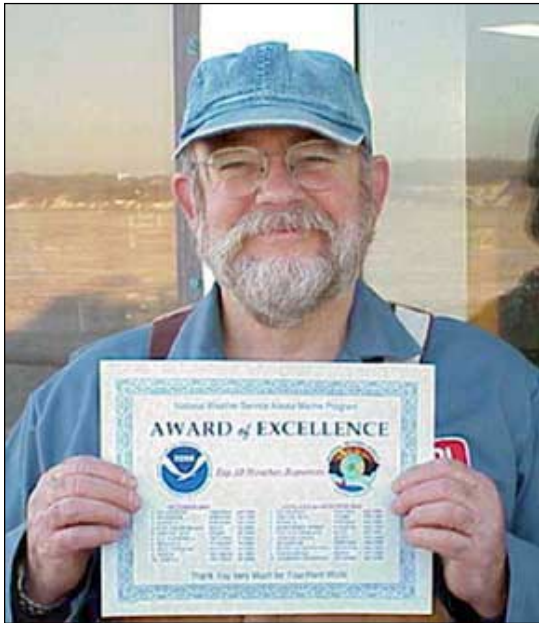
The crew of the CSX *Anchorage* was presented with an Award of Excellence while in the port of Anchorage, Alaska on November 6, 2001. Pictured from left to right are: Cadet Jim Carmany III, 3rd Mate Fred Koster, and 2nd Mate William Johnson.



Captain Douglas Lefebvre of the CSX *Anchorage* received the Alaska Marine Program Award of Excellence while at the Port of Anchorage on November 27, 2001. The CSX *Anchorage* is a Top 10 ship. They have made the 4th highest total of observations in Alaskan waters for both October with 92, and for the first 10 months of 2001 with 565.



Captain Richard Swain (left) and Chief Mate Steve Iltich (right) of the Crowley Tug *Warrior* while at the Port of Anchorage on November 21, 2001.



3rd Mate Jack Worman (left) while in the Port of Anchorage on December 4, 2001, and 2nd Mate Brad Goodwin (below) of the CSX *Kodiak*. The *Kodiak* received the Alaska Marine Program Award of Excellence for November 2001. It was in the Top 10 again in Alaskan waters for ship observations and has taken 478 so far this year.



Captain John Strong from the SeaCoast Tug *Public Pride* receiving the Alaskan Marine Program Award of Excellence for being one of the top weather reporting vessels in Alaskan waters for May 2001. The *Pacific Pride* was visiting the Port of Anchorage on July 27, 2001.



2nd Mate Don Antonio Scichili (left), Captain Domenico Aiello (center) and 2nd Mate Francesco Caccamo (right) of the LNG Tanker *Polar Eagle* as received the Alaska Marine Award of Excellence while in Nikiski, Alaska on December 19, 2001.



Captain Larry Thormahlen (left), Chief Mate George Nielsen (center) and 2nd Mate Mark Irish (right) of the Tug *Malolo* while at the Port of Anchorage on December 3, 2001. The *Malolo* was on of the Top 10 weather reporting vessels in Alaskan water for the month of October 2001. They began using and enjoying the new Windows SEAS 5.22 software this summer.