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GUAM ARTS-11A MSAW CHRONOLOGY
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On August 6 Korean Airlines Flight 801, a Boeing B-747-300, crashed while executing a localizer approach to runway 6L at Guam International Airport. During the ensuing investigation of the FAA radar facility at Guam, NTSB investigators observed that the Minimum Safe Altitude Warning (MSAW) function in the Automated Radar Terminal System (ARTS) HA was inhibited from generating low altitude alerts throughout practically all of the Guam airspace. Further investigation revealed that the inhibiting of the MSAW was neither a fluke nor a malfunction but rather was an intentional adaptation change for the purpose of eliminating numerous nuisance low altitude alerts.

The software site adaptation parameters, prepared at Guam in March 1993, changed the MSAW eligibility area to a 1 NM ring from 54 NM to 55 NM. This change reportedly was discussed and agreed upon by the personnel at the Guam facility, Western-Pacific Region and the Technical Center for use temporarily until a better solution to the problem of nuisance alarms could be found, There is no documentation of this agreement. The change became operational in February 1995.

In July 1995 a facility evaluation report stated that MSAW was operating but was inhibited. The report also stated that a notice to airmen (NOTAM) was issued; however, no such NOTAM can be located. In February 1996 a new software build was prepared which included the same MSAW eligibility data as the previous version. The new software version with the 1 NM ring eligibility area became operational in April 1996.

The KAL 801 aircraft did not generate any ARTS-11A MSAW alerts due to the 54 NM inhibited area.

Steps taken by FAA subsequent to the accident

1. Conducted a re-certification of the MSAW system at all 193 FAA sites where MSAW is installed. Problem discovered at Fayetteville, NC, where the site parameters had not adapted to a recently-commissioned ASR-9 radar site; site adaptation was accomplished and the action is complete.

2. Directed the air traffic managers at sites with MSAW to document and provide a report of all MSAW problem areas. The validation effort has been completed. Two sites where numerous low altitude alarms are generated, Aspen-Pitkin, CO, and Palm Springs, CA, are receiving assistance to reduce these alarms.

3. Conducted flight inspections using FAA aircraft to test MSAW at 23 sites. A previously unknown MSAW inhibited area was discovered at Florence, SC, during the flight inspection. Since MSAW was not a required item during either the ground or flight portions of the commissioning inspection for a new radar, interim policy for MSAW and en-route MSAW was developed to verify proper MSAW operations and was effective on September 8.

4. Restored the MSAW at Guam to full operation on August 23 after adjusting the operating parameters to reduce excessive low altitude alarms. Although the facility is still experiencing an average of 18 "nuisance" alarms per day, work is on-going to reduce these alarms.

5.We are developing a central oversight process for MSAW (and other software tools, such as Conflict Alert) programs and changes.

6. We will require that MSAW be flight checked and ground certified as a part of the commissioning process for a new radar and periodically thereafter. Interim policy was put into effect on September 8 and final policy by October 30.

7. Added MSAW operations to our air traffic facility evaluation program

8. Initiated meetings with the NTSB beginning in August to exchange information.

9. Conducted an intensive survey at ten representative MSAW sites in order to determine a baseline of existing operating conditions and will use this baseline to measure future progress. Sites included ARTS HA, IIIA, and IIIE software programs, Copies of these evaluations are being provided to the NTSB.