

## **Development and Implementation of a Satellite-Monitoring Database System**

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Increases in the number of satellite sensors, data availability and use of remote web-cams have significantly improved monitoring and analysis capabilities in polar regions. New sensors have also increased data volume and complicated the reporting of observations. A new database system has been developed for volcano monitoring at the Alaska Volcano Observatory (AVO) that may be applicable to other disciplines in polar regions, where management of observations is a problem. The new database system stream-lines monitoring procedures and provides consistency in reporting information. This presentation will describe the database system and how it was used at AVO during the recent eruption of Augustine Volcano, January 2006. Prior to this database system, a static data reporting system was used that required five separate steps; data analysis, writing/sending an observation report, data entry, and the preparation of both bi-monthly and weekly reports. Each of these steps was completely independent. The new system has two steps, which may be carried out in parallel; data analysis and data entry. Observations (e.g. volcanic thermal anomaly and ash cloud signal values, location, size, direction, satellite zenith angle) are entered via a simple web interface that requires analysts to enter all critical information, while providing the option to enter more information and analytical comments. The system then populates the database with the entered values and automatically generates observation reports, weekly reports, and bi-monthly reports. The new volcano monitoring database is a significant improvement over previous systems by ensuring that all entries are consistent and include critical information, reduces the time required for monitoring and reporting of volcanic activity, and increases the standard and quality of reporting. Also, the data-search capabilities extract information on eruption characteristics that could not be uncovered previously, providing new avenues of research. The relational database system has been operational since June 2005.