Abstract Review

Review of the Abstract (current Status)

Tracking the Antarctic Scientist in Field Work with NOAA/ARGOS Transmitters

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Scientific and technical people involved in field wok in Antarctica occasionally face extreme weather conditions and emergency support needs or evacuation. Cellular phone networks are not available, and probably won#t for a long time in the region. Geostationary satellite communications require the user to use notebooks and to point antennas, usually not compatible with straining physical situations and nasty winds; additionally, such devices operate only at latitudes below 65 degrees south without mountains in the satellite sightline. Commercial satellite phones depend on internal batteries with short life of about one day and delicate operation beyond the reach of a person in a blizzard sporting clogged snow goggles and freezing hands inside thick and wet gloves or mittens. For 10 years field crews of the Brazilian Antarctic Program has been using specially designed transmitters with real-time reception at its Ferraz Station and Navy support ship. The technology is based on the ARGOS system on-board NOAA (National Oceanic and Atmospheric Administration) satellites commonly use to collect weather data from automatic weather stations and to track wildlife; it is also similar to the emergency beacons in airplanes and ships around the world. The units weight about 01 kg and the internal batteries last up to 4 months of continuous use. Uplink is UHF, and the downlink used is the VHF one and not the standard 1.7 GHz what makes the reception much simpler and cheaper. 244 predefined messages can be chosen by the people in the field, ranging from normal mission status to emergency requests. An alarm will sound at the Ferraz station and at the ship when the field crews send specific or distress messages. Geographical location of the transmitters is obtained with about 01 km accuracy. Many critical human situations were avoided thanks to the transmitters. The paper summarizes the technical aspects of the system and the field experience acquired so far

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Abstract Reference No.: ABS-5889-00210