THE USE OF SIDE-LOOKING AIRBORNE RADAR IN THE DISCOVERY OF METEORITES IN THE ANTARCTIC. C. Mardon, A.A. Mardon, Antarctic Institute of Canada (Suite 103, 11919-82 Street NW, Edmonton, Alberta, Canada, aamardon@yahoo.ca), B. G. Fawcett, Newman Theological College (10012 84 St NW, Edmonton, AB T6A 0B2, bfawcett@ualberta.ca)

Introduction: Historically, the discovery of meteorites in the Antarctic region has always begun with basic strokes of luck: They are discovered at random, often on foot or on snowmobile, before the surrounding area is transected and excavated. Various methods of honing this process of initial discovery have been developed, and one that deserves special attention is the use of various kinds of radar. For example, a 500 MHz GPR (ground-penetrating radar) sensor mounted on a sled was able to detect crevasses and rocks (at least 5 cm large) up to 50 cm beneath the ice. A higher frequency would be necessary to locate smaller rocks. It should be noted that this radar cannot determine what a rock is made of, and therefore cannot distinguish a terrestrial from an extraterrestrial rock.[1] In some ways, this problem can be pre-empted by the use of strategic radar systems that can detect infalling meteorites, saving us the trouble of needing to locate them afterwards.[2] In addition to GPR, SLAR (side-looking airborne radar) has a great deal of potential. The author believes that the technology of satellites has advanced to such an extent that remote sensing using remote sensing aircraft can be covered by satellites, granting that pixel sizes of civilian satellite remote sensing is not yet as good as that which can be acquired from aircraft mounted remote sensing systems.[3] The experience of Harvey's use of RADARSAT in Walcott Neve and Foggy Bottom area to identify blue ice areas within the overlay of ice movement was an excellent tool for finding potential meteorite locations.[4]

References: [1] Foessel, A. (1999). Radar sensor for an autonomous Antarctic explorer. Proc. SPIE, Mobile Robots XIII and Intelligent Transportation Systems, Vol. 3525. Retrieved on August 3, 2015 from https://www.ri.cmu.edu/pub_files/pub2/../foessel_alex_1999_1.pdf.

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