Evidence of a Meteorite Impact in the Indian Ocean During the Younger Dryas Period

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There is evidence in the Indian Ocean that suggests there was a meteorite impact around the Younger Dryas Period. The Younger Dryas denotes a time period of 12,900 years ago to 11,700 years ago where the Northern Hemisphere experienced a cooling event nearly to the temperatures of the Last Glacial Maximum. During this time period, the Southern Hemisphere went through a slight warming event. Though it is largely unexplored, our evidence would be the furthest south a Younger Dryas impact has ever been documented. In core RC 11-119, taken 1,500 kilometers away from the Burckle Crater candidate, the beginning of the Last Glacial Maximum, 21,000 years ago, is estimated to lie at 40 centimeter depth. Based on that data point, the Younger Dryas Period is extrapolated to be between 21 to 25 centimeter range, give or take some centimeters due to bioturbation or current activity. An XRF gun was used to measure the elemental composition of our samples, then the grains were sieved apart to collect those that look like spherules or minerals which have unnatural lines on them, which could be shocked. We found a spike in Nickel, Cobalt and Chromium, 3091.4, 10379, and 18257 parts per million, respectively, at the 21-22 centimeter range. Spherules were also found within this depth range, as well as one at the 19-20 range. The estimated spherule count per 10 grams of sample is 148 spherules at the 21-22 cm range. The element values are 100s of times larger than the expected baseline, and the spherules are made from the expected elements of a meteorite impact. Therefore, we believe there is positive evidence of a meteorite impact in the Southern Hemisphere during the Younger Dryas period.