

OBSERVATIONS OF GEOMAGNETICALLY TRAPPED LIGHT ISOTOPES BY NINA

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The detector NINA, on board of the satellite Resurs-01-N4, observed hydrogen and helium geomagnetically trapped in the period from November 1998 to April 1999. The ^3He and ^4He power-law spectra reconstructed at L-shell=1.2 have indexes equal to 2.2 ± 0.2 in the energy range 12-50 MeV/n, and 3.6 ± 0.5 in 10-30 MeV/n respectively. The presence of ^2H and ^3H isotopes at L-shell less than 1.2 is unambiguously established. The measured ratio $^3\text{He}/^4\text{He}$, and the shape of the reconstructed deuterium profile as a function of L-shell, bring to the conclusion that the main source of such radiation belt light isotopes is the interaction of trapped protons with residual atmospheric helium.