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ONLINE ISSN : 1881-4824

PRINT ISSN : 0912-7984

**BUTSURI-TANSA(Geophysical Exploration)**

Vol. 58 (2005) , No. 5 pp.451-459

[\[Image PDF \(1898K\)\]](#) [\[References\]](#)**Development of a helicopter-borne magnetic survey system in use of a nose boom magnetic sensor and its passive compensation for aircraft's magnetic field**Tadashi Nakatsuka<sup>1)</sup> and Shigeo Okuma<sup>1)</sup>

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(Manuscript received June 3, 2005)

(Accepted August 31, 2005)

**ABSTRACT** A helicopter-borne magnetic survey system was developed in use of a nose boom magnetic sensor, which enables safe and practical operation of low-altitude high-resolution survey even in mountainous regions of very steep topography and high elevation. The system consists mainly of airborne Cesium magnetometer, 3-axis fluxgate magnetometer, GPS receiver, navigation unit, data-acquisition PC, etc., incorporating with other equipment on the ground including base station magnetometer and reference station GPS receiver.

The nose boom magnetic sensor is situated rather near the helicopter body and cannot be free from its magnetic noise, though the boom itself is made non-magnetic. The 3-axis fluxgate magnetometer is the equipment to compensate aircraft's magnetic noise field. Theoretical consideration for passive magnetic compensation and the method of actual data processing for it are discussed. Then the software for magnetic compensation was developed and applied to the data of actual verification survey, and the procedure was proven to accomplish post-flight magnetic compensation properly.

**Key words:** helicopter, stinger, magnetic compensation, 3-axis fluxgate, aeromagnetic survey

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To cite this article:

Tadashi Nakatsuka and Shigeo Okuma (2005): Development of a helicopter-borne magnetic survey system in use of a nose boom magnetic sensor and its passive compensation for aircraft's magnetic field , BUTSURI-TANSA(Geophysical Exploration), **58**, 451-459 .

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doi:10.3124/segj.58.451

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