

Abstract Submitted  
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**Cold Atom Gravity Gradiometer for Geodesy**<sup>1</sup> ALEX SUGARBAKER, ADAM BLACK, MICAH LEDBETTER, TAO HONG, AOSense, Inc., MARK KASEVICH, Stanford University, AOSense, Inc., BABAK SAIF, SCOTT LUTHCKE, BERNARD SEERY, LEE FEINBERG, JOHN MATHER, RITVA KESKI-KUHA, NASA Goddard Space Flight Center — We are developing an atom interferometer gravity gradiometer for Earth science studies from a satellite in low Earth orbit. The target sensitivity of the gradiometer is  $7 \times 10^{-5}$  E/Hz<sup>1/2</sup> when extrapolated to operation in microgravity. This is two orders of magnitude beyond ESA's Gravity field and steady-state Ocean Circulation Explorer (GOCE), and would improve our ability to understand and monitor ocean currents, the thinning of ice sheets, magma flows, and other geophysical phenomena. Many of the techniques employed in this sensor were developed in the Stanford 10 m drop tower [S.M. Dickerson, *et al.*, Phys. Rev. Lett. **111**, 083001 (2013)].

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