Geophysical Research Abstracts
Vol. 21, EGU2019-14184, 2019
EGU General Assembly 2019
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Atom interferometry for earth observation

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Atom interferometry provides a scheme for absolute measurements that has been applied to accelerations, rotations, and tilts.
Current atom gravimeters (1) operate quasi-continuously with a residual uncertainty few $10\,\mathrm{nm/s^2}$. New techniques in atom optics (2,4,7) offer significant reduction in this uncertainty (3) in a transportable setup with the perspective for further developments to highly compact (4) and highly sensitive devices (5). These techniques also have the potential to boost the performance of atomic gyroscopes (6) and tiltmeters (7).
This contribution will show our current results and discuss our approach for future improvements.
The presented work is supported by the CRC 1227 DQmat (project B07), the CRC 1128 geo-Q (projects A01, A02), the German Space Agency (DLR) with funds provided by the Federal Ministry of Economic Affairs and Energy (BMWi) due to an enactment of the German Bundestag under Grant No. DLR 50WP1700, and "Niedersächsisches Vorab" through the "Quantum and Nano- Metrology (QUANOMET)" initiative within the project QT3.

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