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Development and Status of MASCOT – a Small Lander on Hayabusa2



¹Tatsuaki Okada¹, Instrument PI: Ralf Jaumann², Jean-Pierre Bibring³, Matthias Grott², Karl-Heintz Glassmeier⁴, PL Operation: Stephan Ulamec⁵, Jens Biele⁵, Christian Krause⁵, COM Module: Takashi Kubota¹, Tetsuo Yoshimitsu¹, Atsushi Tomiki¹, Micro Gravity: Hajime Yano¹, System: Yuichi Tsuda¹, Christian Ziach⁶, Ross Findlay⁶, Caroline Lange⁶, Organization: Tra-Mi Ho⁶, Pierre Bousquet⁷, Muriel Deleuse⁷ (1:JAXA, 2: DLR-Berlin, 3: Paris-Sud/IAS, 4: TU Braunschweig, 5: DLR-Cologne, 6: DLR-Bremen, 7:CNES)



MASCOT

- A 10kg-class small lander deployed from Hayabusa2
- Intl cooperation between JAXA and DLR (+CNES)
- In situ observation of C-class asteoid 162173(1999JU3)
- Life time within 16hrs (2 asteroid day) with Li-battery
 Multi-site observation by upright/hopping
- Communication module prepared by JAXA

Science Instruments

 In situ obs. for surface mineralogy, physical properties, and geology of C-class asteroid →Cross-scale data with remote-sensing and collected samples
 Geologic context, sampling site selection



Operation Plan

- Decision of landing site after asteroid arrival
- (T(max) < 50degC, day/night cycle) - Autonomous separation from S/C at 100m height
- CAM and MAG observation starts during descent
- Upright after landing, several relocation (Hopping)
- Continuous observation by MARA and MAG
- Imaging at several sites by CAM and MicrOmega - 2 asteroid days (<16Hrs), 200MB data production



Development

- Mechanical: QT level is proven with STM (April 2013)
- Thermal Vacuum: Proven for many phases (Dec 2014)
- Separation: test at micro-gravity (March 2013)
 Electrical IF: tested in IIT (April-May 2013)
- Communication I/F: tested in IIT (May 2013)
 - Payload Calibration: on-going (by late January 2014)

Schedule after IIT

- 2013.6-12 Environmental tests - 2013.11 EM2 (Full-EM) delivery ---> Skipped
- 2014.03 EQM delivery in time for E-Test and TV-Test
- 2014.05 FM delivery in time for V- and S-Test
- 2014.08 Li-Battery replacement for flight
- •2014.11 Launch Site Operation





Development of EQM in DLR-Bremen (April – October 2013)

Communication Test using EM in IIT (May 2013)