



UWA's geotechnical centrifuge facilities

CENTRE FOR OFFSHORE FOUNDATION SYSTEMS



The world leading centrifuge facilities at COFS provide crucial geotechnical data and prediction models that enable the development of safe, economical and robust geotechnical structures for offshore industry.

COFS currently operates the only geotechnical centrifuge facility in Australia, and is equipped with a 3.6 m diameter fixed beam centrifuge and a second 1.2 m drum centrifuge. A third 10 m diameter centrifuge will be housed in the upcoming Indian Ocean Marine Research Centre at UWA starting in 2015.

How it works:

The centrifuge spins scale models at incredible speeds to increase the gravitational forces acting on the models. This allows self-weight stresses in the field to be replicated in centrifuge tests. Test results can then be applied in the field on full-scale pipelines, anchors, caissons and other offshore infrastructure at a fraction of the cost and hazard.

The centrifuge team, headed by Christophe Gaudin (COFS Deputy

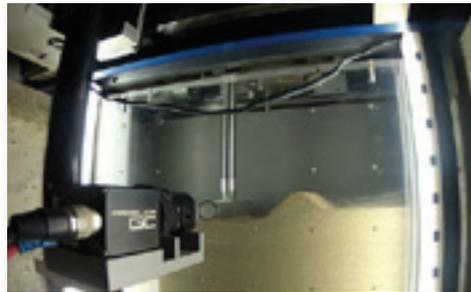
Director and Centrifuge Manager), and Conleth O'Loughlin (Deputy Centrifuge Manager), maintain a busy schedule of centrifuge experiments from local and international academics and industry clients. The centrifuge team works closely with our in-house workshop to design and test scale models of offshore infrastructure components. The centrifuges are usually booked out 12-18 months in advance, as clients queue up for the best facilities in the business.



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Geotechnical Centrifuge Program by the numbers:

- Year the beam centrifuge was established: 1989
- Year the first drum centrifuge was established: 1997
- Technicians supporting the centrifuge facilities: 8
- Revolution of the drum centrifuge since 1991: 2.5×10^8
- Number of days the drum centrifuge spins each year: 250
- Research and industry projects undertaken by centrifuge team each year: >50
- G-level at which the beam centrifuge can spin: 200 g
- G-level at which the drum centrifuge can spin: 400 g
- Maximum g-level experienced by NASA astronauts during take-off: 3 g
- Number of times the beam centrifuge basket has travelled a distance equal to the moon and back since 1989: 11



MODEL TESTING TO SUPPORT PIPELINE DESIGN



CENTRIFUGE TESTING OF ANCHORS FOR OFFSHORE FLOATING OIL AND GAS FACILITIES

Find out more at: cofs.uwa.edu.au