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Linking Large Scale Projects in Gravimetry and Geoscience to a Renewable Energy Future – How Will Science Survive?

We start with a brief traditional review of projects over the past 15 years in high precision gravimetry, embracing topics in hydrology, mass shifts in the Earth system, and hazard monitoring. But developments in geoscience, like all technologically driven areas of science, has been predicated on fossil-fuel powered growth – more instruments, better sensors, expensive satellite missions, and cheap transportation to remote areas – to name only some obvious factors. It is hard to see how such growth can continue for much longer. Projections for the future that assume expanding resources, such as GGOS (the Global Geodetic Observing System), embrace fine goals but may be unrealistically optimistic. Given what we know about the extreme challenges in switching to renewable energy sources to power the society of the future, what changes might we be facing in science? How should we re-orient our institutions to lead this essential transistion?