

Park Grass, a Genomic Observatory

Park Grass is a “Genomic Observatory” - a geographic site with a rich history of environmental/ecological data collection and a long-term commitment to future studies¹. Genomic observatories (<http://www.genomicobservatories.org/>) are being established to take the planet's 'biological pulse'. DNA sequences are becoming core components of Earth-monitoring systems, and data output is soaring from genomics and other observing technologies. But sequence data alone are of limited value without the context of time and location. Genomic observatories, established at existing scientifically important sites, integrate and consolidate genomic information with environmental, socio-ecological and other biological data.

The Park Grass soil metagenome from the untreated control plot 3d is now publically available <http://www.genomenvirion.org/Projects/METASOIL.html> following collaboration under the TerraGenome initiative². The library contains 13 million sequences obtained using 454 technology (average read length 380 b) and represents two different sampling times, two different depths and several different DNA extraction methods. This was joint work between Penny Hirsch, Ian Clark at Rothamsted Research and French collaborators, in particular Tim Vogel, Pascal Simonet, Tom Delmont of the Laboratoire Ampere, Ecole Centrale de Lyon, France as part of their METASOIL project. Details of the methods and results are now available in several joint publications with Rothamsted authors³⁻⁵.

1. Davies N. et al. 2012. Sequencing data: A genomic network to monitor Earth. *Nature* **481**, 145. DOI:10.1038/481145a
2. Vogel TM et al. 2009. TerraGenome: a consortium for the sequencing of a soil metagenome *Nature Reviews Microbiology* **7**: 252. DOI:10.1038/nrmicro2119
3. Delmont TO et al. 2012. Structure, fluctuation and magnitude of a natural grassland soil metagenome. *ISME Journal* **6**: 1677-1687. DOI: 10.1038/ismej.2011.197
4. Delmont TO et al. 2011. Accessing the soil metagenome for studies of microbial diversity. *Appl Environ Microbiol* **77**: 1315-1324. DOI: 10.1128/AEM.01526-10
5. Delmont, T.O., Robe P., Clark, I.M., Simonet, P. & Vogel, T.M. (2011) Metagenomic comparison of direct and indirect soil DNA extraction approaches. *J Microbiol Meth* **86**: 397-400. DOI: 10.1016/j.mimet.2011.06.013