Observatory Sciences

Providing software and services for large physics and astronomy projects

Alan Greer

Observatory Sciences Ltd

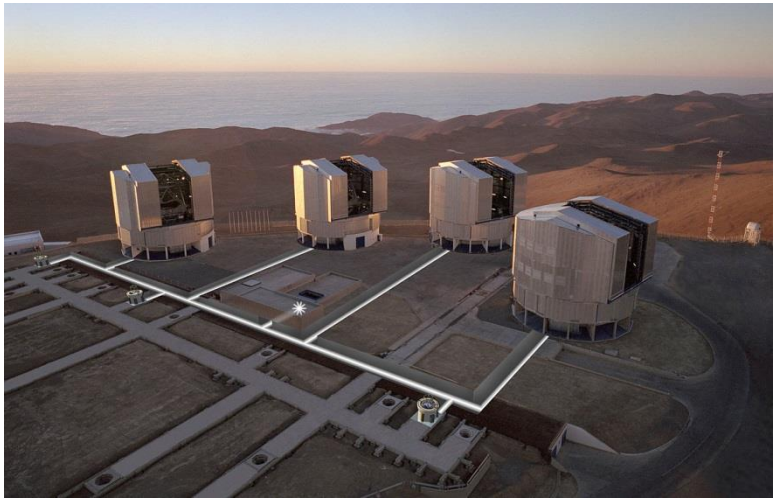
- UK–based company with worldwide clientele, originally set up in 1998 by five scientists from the Royal Greenwich Observatory (Cambridge, UK)
- We specialize in work on large scientific projects (particularly astronomy and accelerators). Our clients are mostly government organisations or their subcontractors.
- Act as a software partner with the suppliers of observatory and synchrotron hardware (particularly motion control)
- 50+ staff-years experience of operational astronomical systems, including management roles at major observatories and high-energy physics facilities.
- A track record of delivering large software projects on-time and on-budget

Technical Expertise

- Applications
  - Controls for large physics facilities, specialist experience in
    - Accelerators (synchrotron & beamlines) controls
    - Telescope control
    - Motion Control (e.g. Delta Tau PMAC)
    - Astronomical instrumentation
  - Large/distributed software projects, including multinational collaborations

- Software
  - Environments
    - TANGO
    - EPICS (Experimental Physics and Industrial Control System)
    - NI LabVIEW
    - Languages: Python, Java, C++, LabVIEW, C

European Southern Observatory Very Large Telescope



The Four Auxiliary Telescopes at Paranal

ESO PR Photo 51c/06 (22 December 2006) © ESO

- Observatory Sciences is contracted by the European Southern Observatory to provide software support for the VLT and VLTI Common Software Infrastructure. The software work will include bug fixes, enhancements and new software modules. The code base is estimated at 2 million lines of code.
- The ESO Very Large Telescope is located on Cerro Paranal in the Atacama Desert of northern Chile. It is the world's most productive ground-based facility for astronomy.
- The VLT consists of an array of four 8-meter telescopes which can work independently or in combined mode. In this latter mode the VLTI provides the total light collecting power of a 16 meter single telescope.

Diamond Light Source

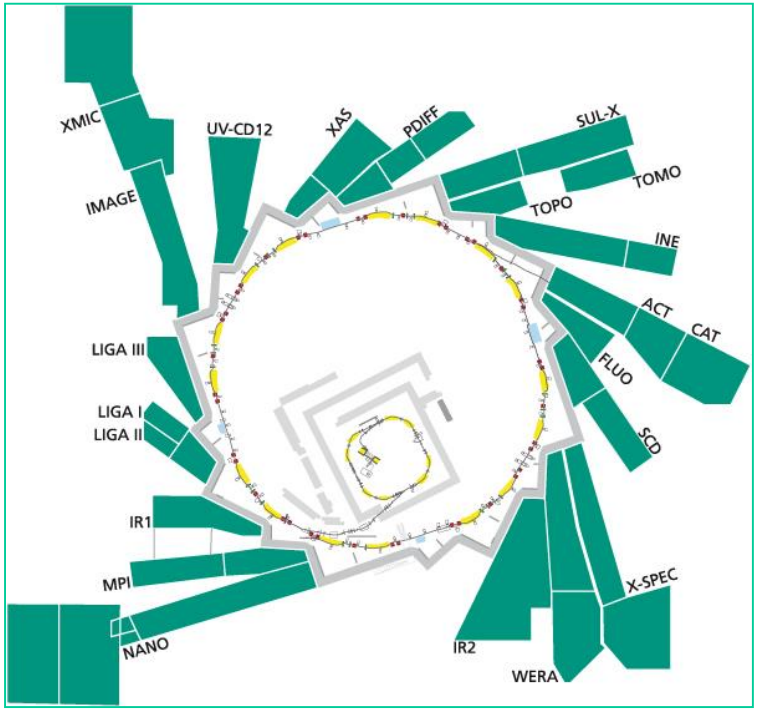
Diamond Light Source is the UK's national synchrotron science facility. Observatory Sciences has been supplying software and services under Framework Contracts to Diamond Light Source (DLS) since 2006.

- Providing ongoing software support for Diamond software development and commissioning.
- Have been involved in commissioning and support for all 3 phases of DLS beamline development. Phase III was completed by the end of 2017 (total 32 beamlines).
- OSL has provided a series of EPICS software training courses for DLS staff.

Square Kilometre Array Observatory

- The Square Kilometre Array (SKA) is a multinational radio telescope now being built in Australia and South Africa, with headquarters in the UK.
- When completed it will have a total collecting area of approximately one square kilometre. It will operate over a wide range of frequencies and its size will make it 50 times more sensitive than any other radio telescope.
- SKAO has adopted TANGO as their software framework.
- Observatory Sciences is providing software development effort to SKAO as part of the Monitoring, Control and Calibration Software (MCCS) project.

TANGO Software Projects

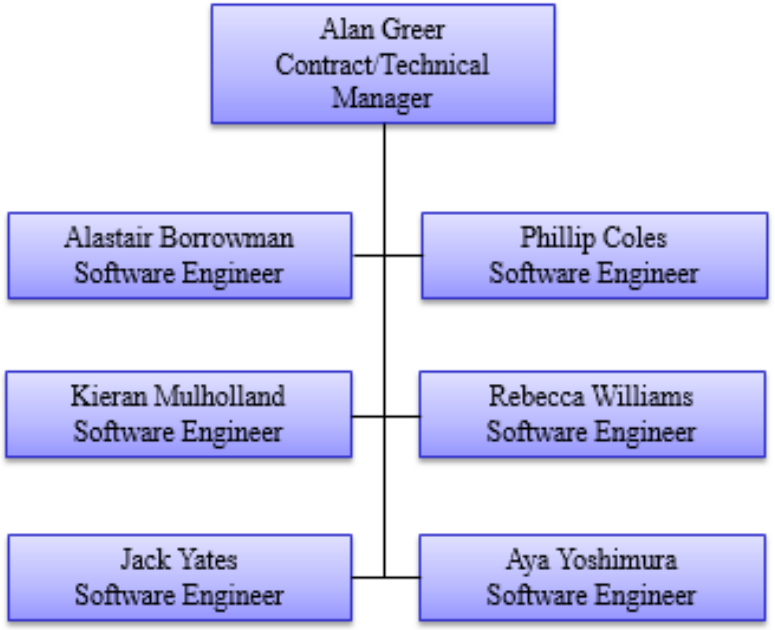


- TANGO software support for hexapod devices for the Symetrie company (France).
- TANGO-based control system for the X-SPEC beamline dual-wavelength undulator at the ANKA synchrotron, Germany.
- Observatory Sciences has produced TANGO software support for Omron (Delta Tau) PMAC motion controllers.

ESRF

ESRF
The European Synchrotron

Software Development for TANGO Community



www.observatorysciences.co.uk

Thank you for your attention