SAGES:
Scottish Alliance for Geoscience, Environment and Society

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Aim

SAGES brings together distributed strengths in Scottish universities to understand and predict the inter-relationships between earth surface processes, environmental change and society. Our strategy is to build critical mass and expertise to address some of the grand challenges of Earth System Science. We focus on three themes: Landscape dynamics,Terrestrial carbon cycle and Oceans, atmosphere and climate. There are also three integrative activities spanning the themes: a modelling Centre of Earth System Dynamics, a Knowledge transfer capability and a Graduate programme.

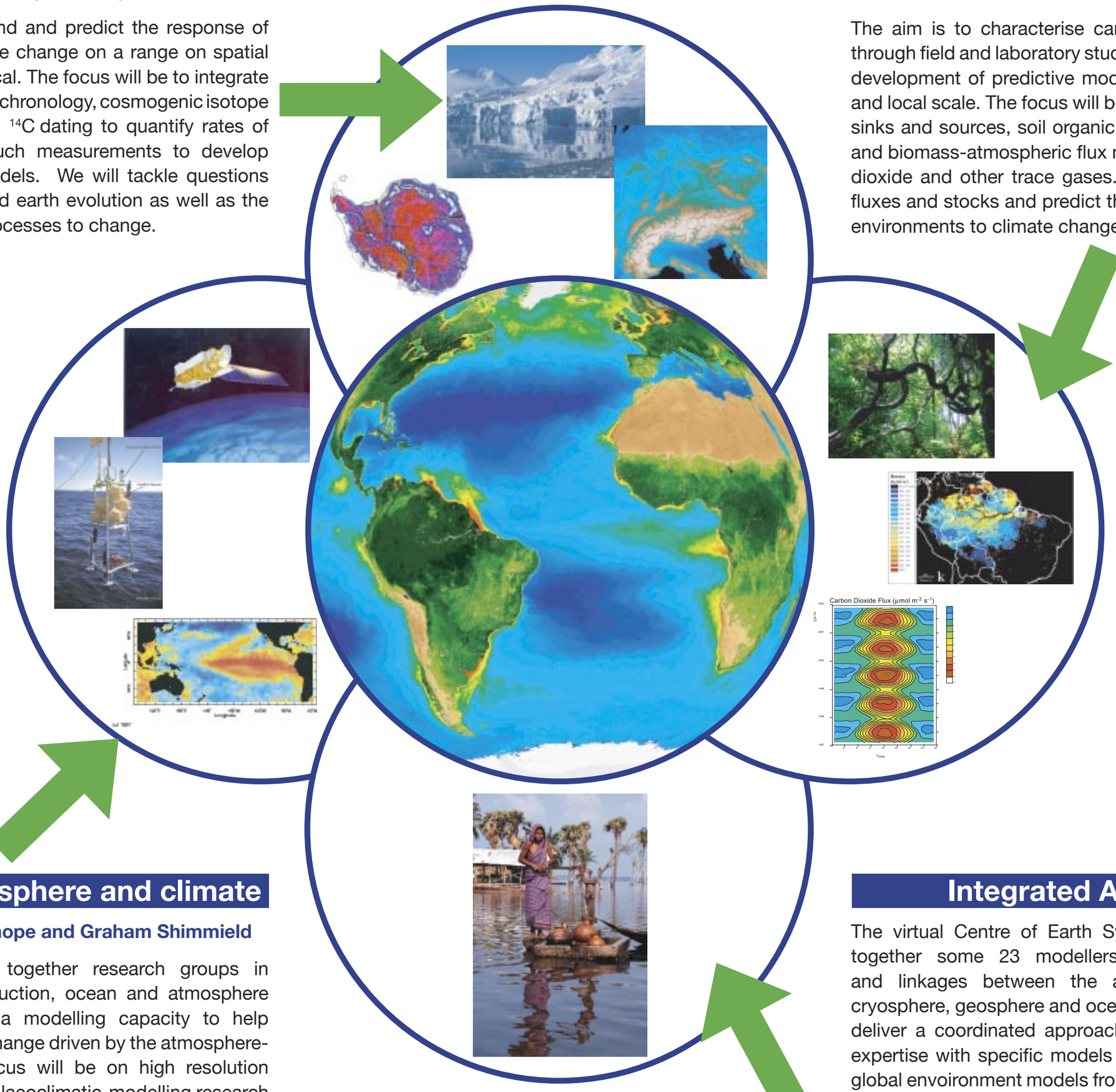
The alliance

SAGES represents a coordinated investment of £22 million by the participating universities and the Scottish Funding Council. The participating institutions are the Universities of Aberdeen, Abertay, Dundee, Edinburgh, Glasgow, Paisley, St Andrews, Stirling, UHI Millennium Institute (SAMS) and SUERC. We will appoint 37 new staff across the institutions, improve our facilities and offer visiting fellowships and studentships.

Landscape dynamics

Leaders: Paul Bishop and Hugh Sinclair

The aim is to understand and predict the response of the landscape to climate change on a range on spatial scales from global to local. The focus will be to integrate low-temperature thermochronology, cosmogenic isotope analyses and ^{210}Pb and ^{14}C dating to quantify rates of change and to use such measurements to develop dynamic landscape models. We will tackle questions of landscape history and earth evolution as well as the sensitivity of surface processes to change.



Terrestrial carbon cycle

Leaders: John Grace and Iain Young

The aim is to characterise carbon sinks and sources through field and laboratory studies that contribute to the development of predictive models at a global, regional and local scale. The focus will be on vegetation and peat sinks and sources, soil organic carbon, nutrient cycling and biomass-atmospheric flux measurements of carbon dioxide and other trace gases. We will identify carbon fluxes and stocks and predict the response of terrestrial environments to climate change.

Oceans, atmosphere and climate

Leaders: Sandy Tudhope and Graham Shimmield

The aim is to bring together research groups in palaeoclimatic reconstruction, ocean and atmosphere dynamics to develop a modelling capacity to help predict future climatic change driven by the atmosphere-ocean system. The focus will be on high resolution modelling, integrated palaeoclimatic-modelling research and ocean-climate processes in the North Atlantic. We will tackle questions of rapid climate change, regional manifestations of change, and ocean currents in the North Atlantic.

SAGES has a programme of Knowledge Transfer to ensure that there is a link between the science and policy, industry and society. In order to achieve this, there are posts linked to the science themes and others which are new or linked to existing KT activities within the alliance.

The Graduate Programme offers new integrating studentships and a Scottish-wide research environment for postgraduates, involving pooled modules, access to facilities and student-centred symposia.

Integrated Activities

The virtual Centre of Earth System Dynamics brings together some 23 modellers examining processes and linkages between the atmosphere, biosphere, cryosphere, geosphere and oceans. The programme will deliver a coordinated approach to modelling, building expertise with specific models such as versions of the global envoironment models from the Hadley Centre and focussing on high-resolution treatments in a regional context. We will address specific questions at both a regional and global scale and test components that represent key processes, such as the carbon cycle, vegetation, erosion and ice sheets. This will help identify the critical feedbacks in the context of realistic high-resolution topography and land-use patterns.

Further information: www.sages.ac.uk