Geophysicist

Geophysicists study the physical composition and structure of the Earth, and measure and analyse forces such as earthquakes, magnetism or gravity that affect it. They also look for important minerals, including oil and gas, under the Earth's surface.

The Work

A geophysicist often works in the broader field of geology, and the work may overlap with that of a geochemist and a geologist. See related article Geologist.

You could be:

- studying the movement of tectonic plates in the Earth's crust to predict and measure volcanic eruptions and earthquakes
- doing surveys, using techniques such as seismic (vibration) testing, to find where there are natural resources such as coal, gas, oil or water
- searching for sources of suitable rock for building roads, dams, tunnels and buildings or installing pipelines and cables
- checking the condition of bedrock and subsoil, and working out the risk of landslide, subsidence or earthquake
- using special equipment to identify changes in the soil and subsoil, which might show the presence of archaeological remains or early land use
- collecting information to make geological maps, 3D computer models and databases
- taking samples on site then testing and evaluating them in a laboratory
- working with a team of other professionals, including geologists and engineers
- analysing results and writing reports.

Pay

The figures below are only a guide. Actual pay rates may vary, depending on:

- where you work
- the size of the company or organisation you work for
- the demand for the job.

The starting salaries for geophysicists in postdoctoral research posts are normally in the range £30,000 to £35,000 a year. University lecturers earn up to around £50,000 a year. More senior research and teaching staff can earn over £60,000 a year.

In exploration work, new graduate salaries can range from £28,000 to £30,000 a year, depending on the industry you work in. With experience, this can rise to around £50,000. In senior positions the salary can be up to £80,000 and even more in the oil and gas industry. Salaries can be higher abroad.

Conditions

- You would work in a laboratory or office, using a computer for 3D modelling.
- You would also spend time outside, onsite, taking samples and doing surveys. This may be on land, at sea or offshore on a rig.
- If you work away from home, particularly at sea or offshore, you will probably have to share living and sleeping space with others.
- You may have to work in difficult physical conditions and very hot or cold climates.
- You would have to travel, possibly overseas.
- A driving licence is useful.
- You would work regular hours, but may have to work shifts including evenings or weekends, especially when you are onsite.
- You would have to wear protective clothing, such as a safety helmet and boots, when you are onsite.

Getting In

- You would need an undergraduate degree (SCQF Level 9) in a relevant subject. The Universities of Edinburgh offers a degree programme in geophysics. For entry you are likely to need 4-5 Highers including Maths and Physics plus English at least at National 5.
- You may be accepted with a degree in a closely related subject such as physics, mathematics or geology. For entry you need 4 good Highers including Maths and Physics.
- Most entrants have a postgraduate qualification (SCQF Level 11) in a specialist geological or geophysical subject. University of Aberdeen offer an MSc in Geophysics.
- You need to be fit, to work onsite.

As a geophysicist you might work for the British Geological Survey, the British Antarctic Survey, oil or gas companies, mining or civil engineering firms. There are some jobs with specialist companies doing seismic surveys. There are also a limited number of jobs in archaeological work.

What Does It Take

You need to have:

- an aptitude for maths and physics
- an interest in science and the natural world
- a methodical and accurate approach
- excellent analytical and problem solving skills
- good IT skills to work with specialist computer software
- good written and spoken communication skills
- project management skills.

You need to be able to:

- analyse large amounts of data from different sources
- make judgements based on the information available
- use your initiative and take responsibility
- work alone and as part of a team

- adapt to new techniques and theories.

Training

- Training is usually on the job. Some employers provide specialist graduate training programmes.
- For some work, you may have to do further postgraduate or professional study.
- The Geological Society runs continuing professional development (CPD) courses.
- To work at sea or offshore you would need to undergo safety and survival training.

Getting On

- You would probably specialise in one branch of work, perhaps in general or seismic survey work, for oil or gas companies, mining or civil engineering firms.
- You may need further postgraduate qualifications to get promotion.
- With experience and ability, you could move into specialist senior posts or into management.
- Becoming a member of a professional body, such as The Geological Society, may help to further your career.
- You may also do research or conservation work.
- You should be willing to move – this may be essential and you may have to work abroad.

More Information

The Subsurface Task Force have produced a useful guide for those interested considering studying geology and earth science, covering Higher through to Postgraduate level. Energy Geoscience - Career Pathways

Contacts

British Geological Survey
Tel: 0115 936 3100
Email: enquiries@bgs.ac.uk
Website: www.bgs.ac.uk
X: @BritGeoSurvey
Facebook: www.facebook.com/BritishGeologicalSurvey

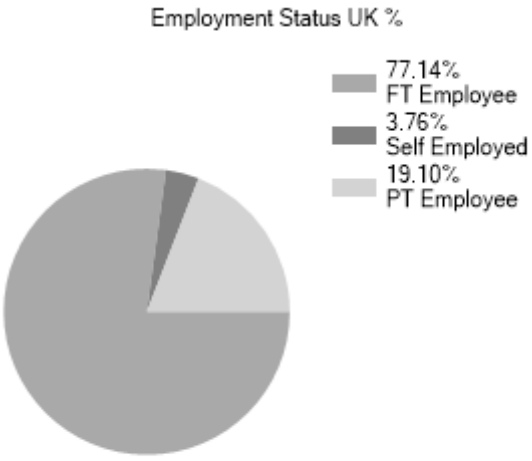
Geologists' Association
Tel: 020 7434 9298
Website: geologistsassociation.org.uk
Facebook: www.facebook.com/GeolAssoc

Offshore Energies UK (OEUK)
Email: info@oeuk.org.uk
Website: oeuk.org.uk
X: @OEUK_
Facebook: www.facebook.com/OffshoreEnergiesUK

OPITO - My Energy Future
Tel: 01224 787800
Email: reception@opito.com
Website: www.opito.com/future-skills/my-energy-future
Facebook: www.facebook.com/OPITOglobal

SPE Aberdeen
Tel: 01651 873 791
Email: info@spe-uk.org
Website: www.spe-aberdeen.org

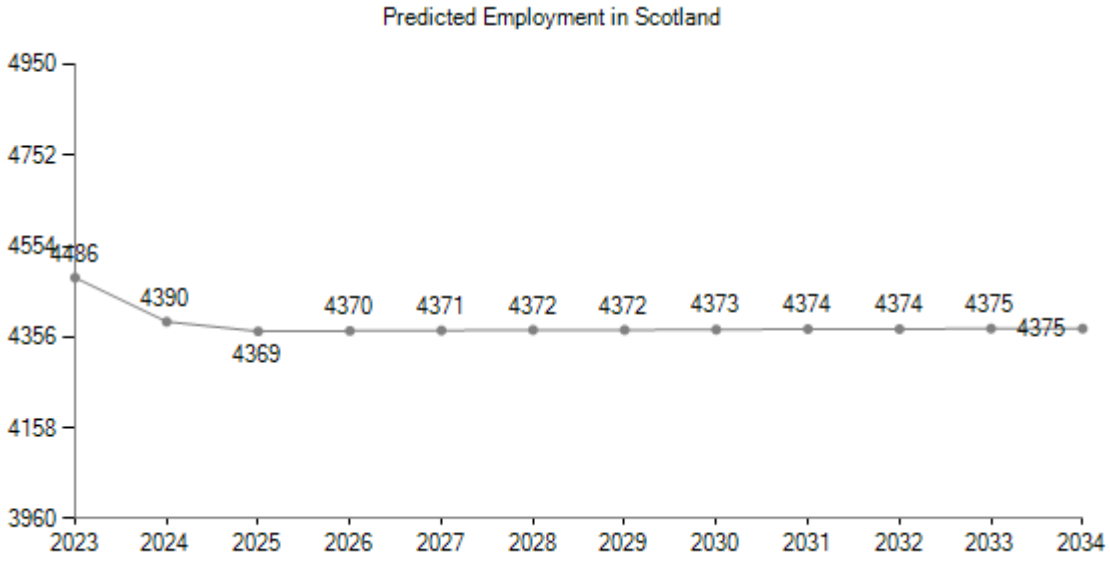
Statistics



Past Unemployment - Scotland

No Claimant statistics available for Scotland.

LMI data powered by LMI for All



LMI data powered by Lightcast