

# Delivery Plan 2019





### Minimising the effects of flooding

For over 50 years, NERC-funded scientists have researched UK sea levels, river basins, storm surges, aquifers and surface flows, saving lives, homes and businesses. For example:

- Research led by CEH has resulted in annual savings of between £76 million and £127 million due to a new model that enables accurate flood warnings five days rather than two days in advance;
- Accurate tide and storm-surge information for the Thames Barrier provided by NOC helps protect 1.25 million people on the London floodplain and £200 billion of property. NERC data and understanding also showed that the existing Thames Barrier can continue protecting London until 2070, avoiding billions of pounds in premature replacement costs; and
- Improved forecasting systems and advice provided by BGS mean that over 50,000 fewer UK homes have been flooded. The UK floods in 2013-14 affected 6,000 homes, whereas the 2007 flood affected more than ten times that number, even though the more recent storms were more severe.

### Fewer diversions for airlines

Our science helps protect infrastructure from natural hazards, enabling significant cost savings and reducing disruption. For example, airlines have saved millions of pounds thanks to a model that warns airports about severe winds, minimising flight diversions. An air-turbulence forecasting algorithm meanwhile, has revolutionised the ability to predict invisible clear-air turbulence, improving comfort and safety on billions of passenger journeys. Our funded research, spanning support for PhDs through to discovery science, has also enabled theoretical atmospheric research that has delivered real-world benefits. Since 2015, the US National Weather Service has used an algorithm developed by the University of Reading, which has improved comfort and safety for an estimated 2.5 billion passenger journeys and by reducing unnecessary diversions delivered significant savings in emissions. The researchers are now working with Airbus to ensure aircraft design can accommodate increased turbulence forecast due to climate change.

