

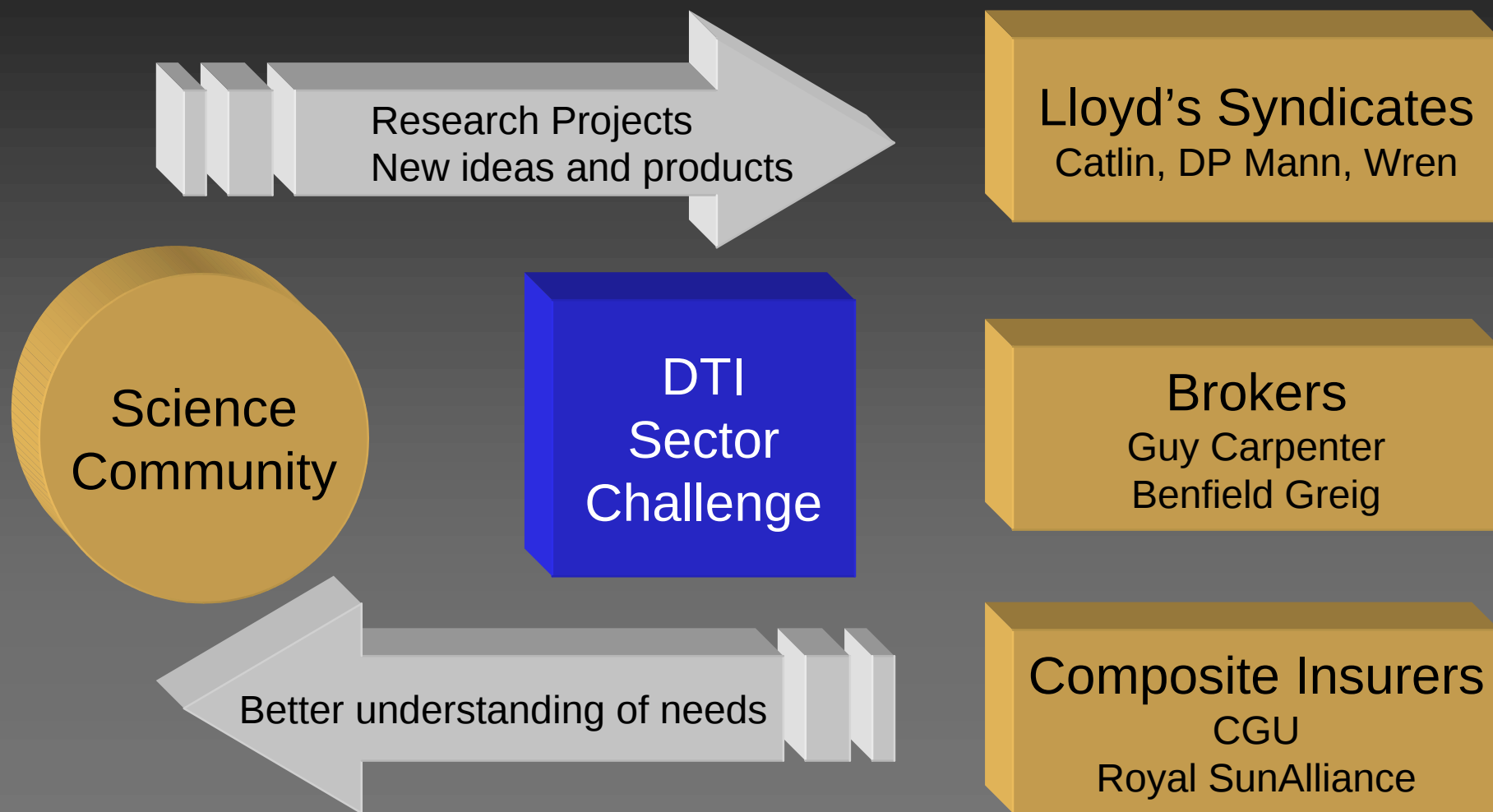


Genesis

- **DTI concerned about the loss of competitive edge by the London market**
- **Managing Agents required to improve estimates of aggregated exposures - disaster scenarios**
- **Composites reviewing reinsurance purchase arrangements**
- **Brokers shifting to fee based income and seeking to differentiate themselves through technical advice**



Linking Science and Insurance to improve Competitiveness





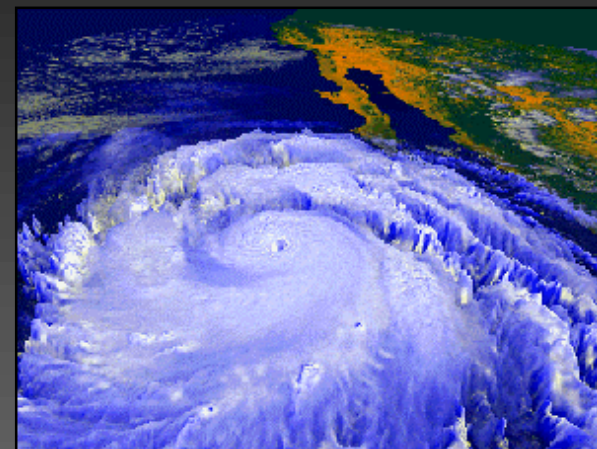
Current Status

- **Budget of £960,000 to spend over three years from 1st September 1997**
 - £480,000 from DTI Sector Challenge
 - £480,000 from Consortium members
- **Administered by the British Antarctic Survey in Cambridge (a component institute of the government environmental science funding body - the Natural Environment Research Council or NERC)**
- **Currently two full time employees**
 - James Orr and Lance Garrard



Tropical Cyclone Forecasting

- Establish a new methodology for Seasonal prediction of Land-falling Tropical Cyclones in three oceanic basins
- Awarded to
 - The Meteorological Office (project management)
 - University College London (Benfield Greig Hazard Research Centre)
 - Reading University



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RESEARCH CENTRE



The Met. Office





Extreme Weather in Northern Europe

- **Improve the prediction of extreme events and the assessment of risk from major European weather events**
 - Spatial estimates of the probability and correlation of the occurrence of severe weather events, with varying degrees of severity, and predict changes in the climate
 - Consider the value of “teleconnections” in the understanding of climate periodicity and trends, so allowing improved forecast accuracy
- **Awarded to**
 - University of East Anglia (Climatic Research Unit)
 - University College London (Department of Statistical Science with support from Imperial College)





UK Flood Risks

Project Aims

- **Consider the “availability and affordability” issues for UK flood insurance in the light of expected developments during 1999**
 - New Environment Agency flood maps
 - IoH Flood Estimation Handbook
 - University of Dundee’s Report of Flood Claims Costs
 - New Halcrow Reports
 - Weak Links in sea defense
 - The Thames upstream from the Barrier
 - LIDAR digital elevation mapping
- **Joint with the ABI**





Tsunami Risks

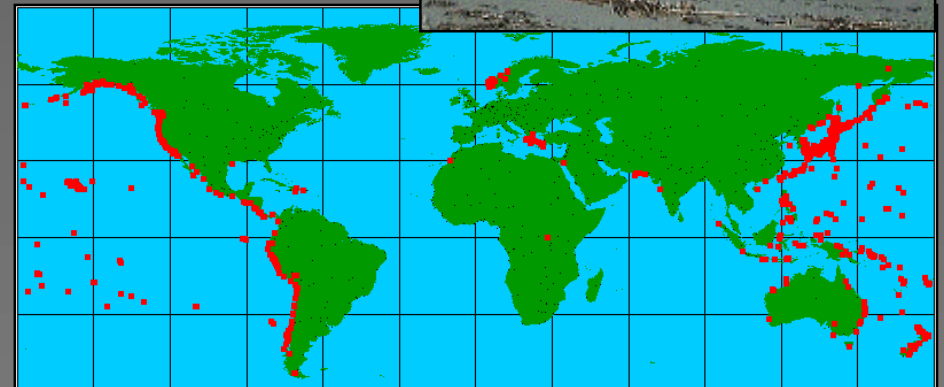
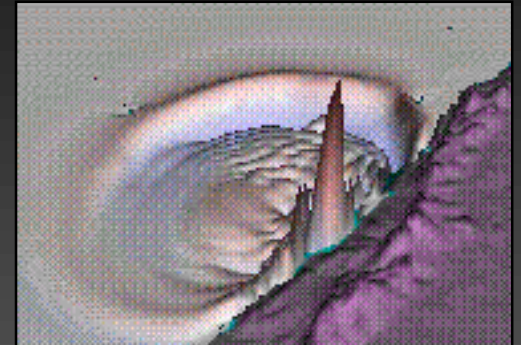
- **Deliverables**

- Publish a guide to the Tsunami phenomenon
- Develop a world hazard map
- Further the understanding of risk assessment

- **Awarded to**

- Coventry University and University College London (Benfield Greig Hazard Research Centre)

- **Financial Support from the HSE**



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COVENTRY
UNIVERSITY



Uninsured Losses

- **Understand how uninsured losses impact**

- Individuals
- Companies
- Local governments
- Central governments

- **Awarded to**

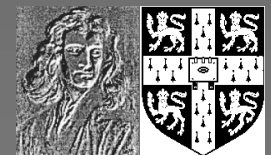
- Surrey University, Centre for Environmental Strategy
- International Institute for Applied Systems Analysis





Extreme Value Statistics

- Identify new mathematical methods for forecasting future losses
- Analysis of insurer data sets using novel methods
- Awarded to
 - The Isaac Newton Institute for Mathematical Studies in Cambridge
- TSUNAMI consortium follow-up
 - Translating methodology for practical use (Mark Dixon courses)
 - Industry study group led by Peter Taylor (DP Mann) established - Y2K study started at University of Cambridge





Reliable Estimates for Return Periods

- **Example Comparison**

Return Period for Major UK Windstorm Storm

Exponential	487 years
Pareto	187 years
GPD	333 years
Industry Estimate	<50 years



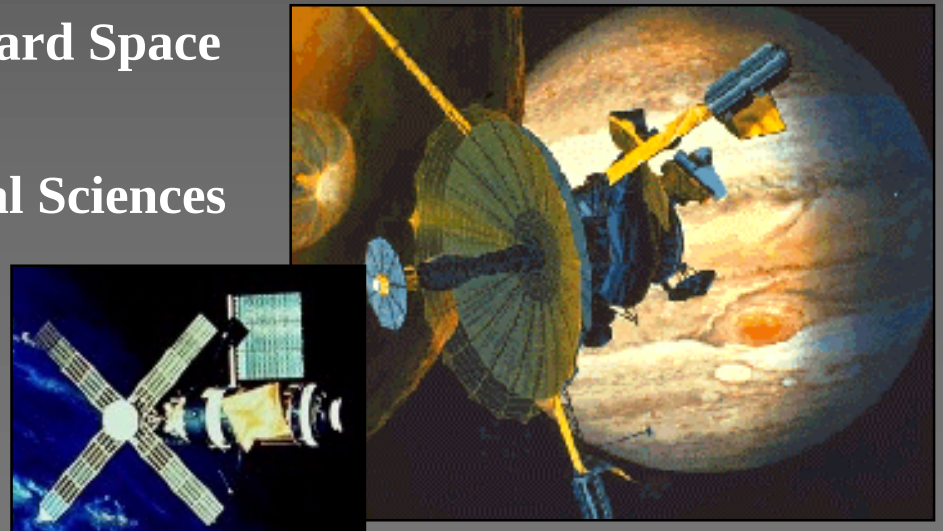
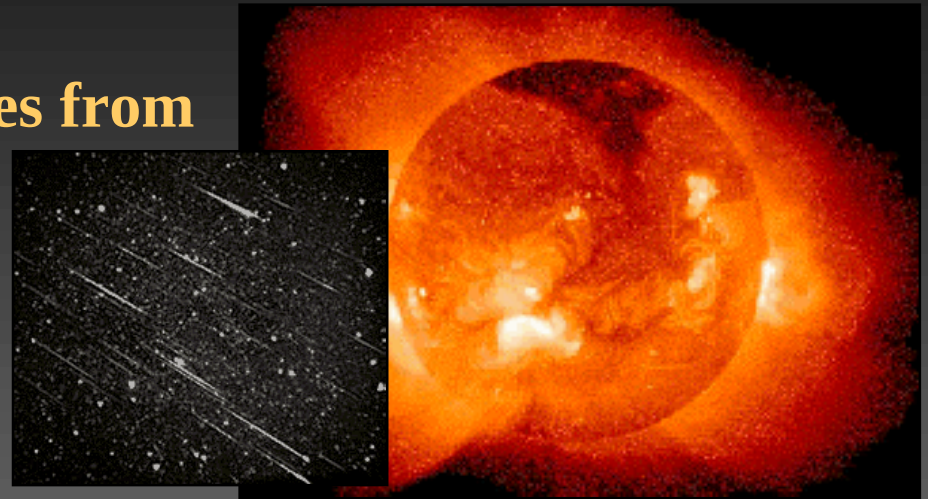
Projects under Consideration

- **Localised wind enhancement**
 - Utilising new models of wind gusting from local topography to understand how to interpolate average wind speeds from climate models
- **Correlations of macro-economic parameters and insurance losses**
 - Explore correlations between economic parameters and insurance losses to utilise economic forecasting for improved estimates of future losses



Satellite Risks

- **Understand the risks to satellites from**
 - High energy particles
 - Magnetic storms
 - Meteorite showers
 - Space debris
- **Project under consideration involving**
 - University College London (Mullard Space Science Laboratory)
 - British Antarctic Survey (Physical Sciences Division)





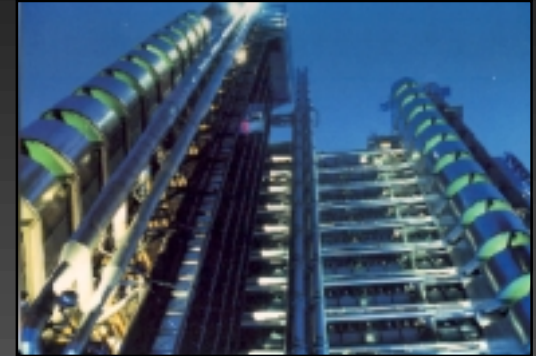
Communication

- **TSUNAMI organises**
 - Meetings, workshops, seminars, informal luncheons and conferences to stimulate discussions of the underlying aims of the initiative
- **Workshops held**
 - El Nino, earthquakes, quantified risk assessment, Y2K, new mathematical methods for extreme value analysis The Millennium Bug from an insurers perspective
- **Web Site (www.nerc-bas.ac.uk/public/tsunami)**
 - Multiple levels of access



Communication

- Joint Seminars between the Insurance Industry and the Research Community
- Spring 2000 TSUNAMI conference at the Royal Society
- Science Strategy Workshop





Summary

- **TSUNAMI is seeking to improve the competitiveness of the UK insurance industry through the better application of the results of R&D**
- **TSUNAMI articulates the user need, develops project scope with consortium members, puts a research team together and monitors the progress of the project**
- **TSUNAMI funds research through fast track projects, announcements of opportunity and contracted research**
- **TSUNAMI also organises and funds workshops and conferences**
- **TSUNAMI II possible but organise as an entity**