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TSUNAMI

Linking Insurance and Science

Minutes of the Thirteenth Management Board Meeting from 2:30 p.m. to 5:00 p.m. on Wednesday, 17 November 1999 at Benfield Greig, 55 Bishopsgate, London

Attendees :	Simon Jennings	-	Benfield Greig
	David Simmons	-	Benfield Greig
	Dougal Goodman	-	British Antarctic Survey (Chairman)
	Paul Brand	-	Catlin
	Mike Cooper	-	CGU Group
	Peter Taylor	-	DP Mann
	Dickie Whitaker	-	Guy Carpenter
	Lance Garrard	-	TSUNAMI
	James Orr	-	TSUNAMI (Secretary)
	Lynn Dimmock	-	Wren
Apologies:	Andrew Dlugolecki	-	CGU Group
	Simon Groves	-	Wren
	Julia Graham	-	Royal & SunAlliance
	Jonathan Norman	-	Guy Carpenter

Actions:

- Board members to provide feedback on the presentation made at the Communications Workshop – see www.nerc-bas.ac.uk/public/tsunami (Username: "tsunami", Password: "green9land").
- TSUNAMI to create a profile of the guest list and begin a target list for the audience at the day functions of the Royal Society Conference in April 2000.
- TSUNAMI to produce proposals for the three main keynote speeches and after-dinner speaker at the Royal Society Conference in April 2000.
- TSUNAMI to produce a paper outlining the high-level (Management Board) review of the TSUNAMI, which would be held shortly after the Royal Society Conference in April 2000.
- Peter Taylor and TSUNAMI to present a paper at the next Board meeting, setting out the recommendations of the Extreme Value Statistics Study Group.
- TSUNAMI to discuss the possible attendance of representatives from Benfield Greig and Wren at the Extreme Value Statistics Training Days on Thursday, 24 November and Friday, 25 November.
- DP Mann to confirm whether they will be supporting the proposal Satellite Risks research proposal.
- TSUNAMI to arrange meetings with interested consortium representatives to discuss the development of a Business Interruption risks research proposal.
- Dougal Goodman and TSUNAMI to draft a representation to the Royal Society delegation to HM Treasury, on data costs from public sector research organisation.
- TSUNAMI and Dougal Goodman to prepare a proposal for a visit to the Southampton Oceanography Centre or the Centre for Coastal and Marine Studies.
- TSUNAMI to set the date of the next Board meeting, early in the New Year.

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- Dougal Goodman and TSUNAMI to draft a paper discussing the application of remote sensing data, targeted at the head of the British National Space Centre.

1. Confirmation of Minutes of the Twelfth Management Board Meeting

The minutes of the previous meeting were accepted without amendment.

2. Update on Strategy

Dougal Goodman presented a paper to the Board. The presentation and discussion were not recorded.

3. Report on Communications Workshop

Dougal Goodman opened by thanking Lance Garrard for organising the TSUNAMI Communications Workshop, held on Monday, 20 September at Lloyd's of London and Thursday, 11 November at Imperial College London.

Lance Garrard explained that the workshop had been based on a request to scientists for potential research projects and the selection of a subset of those proposals, which was presented to an audience from the insurance industry.

The selection process had involved ranking by subject group and two presentations on heating degree-days, in particular, had been given. Other topics included mathematical modelling of dependency between claims frequency and amounts, sea-surface temperature forecasts, storm surge analysis based on historical data sets and severe frost forecasting.

Following these presentations, individual researchers would be invited to join in an open dialogue with consortium companies on the potential development and commissioning of research projects. Lance explained that companies were welcome to distribute the material coming out of the workshop and that he would welcome their feedback.

Action - Board

Mike Cooper confirmed that he had found personal discussions with the researchers useful and Lynn Dimmock also mentioned that witnessing the debate between academics had been helpful in understanding the issues underlying the science.

4. Update on Conference 2000

James Orr presented a paper on the planned Royal Society Conference in April 2000. An interest was expressed in including technical presentations, related to TSUNAMI's research projects and targeted at insurance industry personnel. It was therefore agreed that a mixed audience, of scientists and insurance industry specialists, would be sought for the conference.

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Action - TSUNAMI

Dougal Goodman explained that keynote speakers would include a senior manager from the Financial Services Authority and that John Taylor, Director General of the Research Councils, would also be asked to present. A paper setting out the arrangements for the keynote speeches would shortly be sent to the Board for their approval.

Action - TSUNAMI

Peter Taylor emphasised the need for "show case" presentations to demonstrate the value of research to senior executives in the industry. The conference should seek to review the added value coming from research and be organised as a communication exercise. Also, the commercialisation of research needed to take a higher profile. In response, Dougal Goodman explained that the Baker Review (of research within public sector research organisations) would seek to address the issue of exploiting research output.

Paul Brand suggested that the communications aim could be achieved as part of the evening dinner, which would be targeted at senior executives and would allow consortium members the opportunity to invite corporate partners and clients. Moreover, the dinner (or pre-dinner) presentation could seek to explain why corporate sponsors should support the activities of TSUNAMI beyond its initial stage of funding.

Lance Garrard described the challenge in trying to disseminate research to the broader insurance industry and suggested that this was as much an internal matter for the individual companies as an external issue for TSUNAMI. However, the scientific community should also be responsible for selling their wares and the absence of a "shop" for research was still a significant barrier.

Dickie Whitaker opined that some individual projects under TSUNAMI would not score well, as providing a return on their underlying investment, but that cultural change was the implicit aim of TSUNAMI and that a long-term view of its activities and contribution should be taken.

Lance Garrard also suggested that the experience of Royal & SunAlliance in promoting TSUNAMI through a business-wide steering group could provide a valuable case study, from which other consortium members could learn.

Mike Cooper explained that the delay in obtaining results from research was now understood and that a lasting commitment to specific research activities may be forthcoming, from which an ultimate dividend may be realised.

Simon Jennings suggested that feedback should be given on particular projects on their completion. Supporting this, Dougal Goodman suggested that feedback should be sought as part of the on-going management of projects and that a high-level review of TSUNAMI and

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the individual projects should be held shortly after the conference. This review would focus on two deliverables from TSUNAMI – cultural change and information on risk. A paper would be produced describing arrangement for this high-level review.

Action - TSUNAMI

5. Update on Extreme Value Statistics

Peter Taylor reported that data provided by DP Mann on claims was now being analysed. The data was split between natural and litigation "catastrophes", and the analysis was looking to understand the incidence and development of claims. This research would inform the development of a potential Y2K Reporting methodology.

After the next meeting of the Extreme Value Statistics Study Group on Monday, 29 November, Peter confirmed that recommendations would be made to the Board. These recommendations would cover the future work relating to the techniques coming out from the programme at the Isaac Newton Institute for Mathematical Methods on non-linear and non-stationary signal processing. This report would be tabled at the next TSUNAMI Management Board Meeting.

Action – TSUNAMI and Peter Taylor

Looking to this report, Peter did not envisage the creation of any large projects in the short term and confirmed that the Y2K Reporting project would be treated as a discreet example, due to the imminence of the turn of the millennium.

Finally, in relation to training on Extreme Value Statistics, David Simmons and Lynn Dimmock confirmed that they would be interested in receiving details of the course.

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Action - TSUNAMI

6. Information Paper

a) Satellite Risks

Lance Garrard confirmed that the potential funding partners for the two projects were currently as follows:

Indication of funding	Risks to Satellites	Black Box
Marsh Aviation (Guy Carpenter)	Yes	Yes
Benfield Greig	Yes	Yes
DP Mann	To Be Confirmed	N/A
Wren	Yes	Yes

Confirmation of DP Mann's position would be sought subsequent to the meeting.

Action – DP Mann and TSUNAMI

b) Wind Hazards

Lance Garrard explained that a revision of costs for the Met.Office had led to an additional £7,000 to cover their time costs in presenting data to support the research. At present, Benfield Greig, Guy Carpenter and Royal & SunAlliance had confirmed their interest in the project, but the vote of CGU Group was being reconsidered.

7. Business Interruption Project Proposal

James Orr presented an outline paper describing a possible research project looking at business interruption risks.

The Board showed general interest in developing this project, although Paul Brand raised concerns that large operations were already surveyed adequately and Dickie Whitaker explained that there was a lack of data on smaller risks. However, analysis that sought to identify patterns within different industrial sectors was seen as potentially valuable and Peter Taylor suggested that the research could focus on the Fortune 500 companies in the US.

James Orr suggested that the research would seek to limit itself to operations of a particular size (medium to small) and would begin by looking at UK-based companies. Further development meetings and a revised project proposal would be produced in the near future.

Action - TSUNAMI

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8. Any Other Business

a) Cost of Data

Dougal Goodman explained that a Royal Society delegation including Professor Julian Hunt, chair of the TSUNAMI Scientific Advisory Committee, would shortly visit HM Treasury, to discuss the cost of geographic and meteorological data in the UK.

As an aside, Dougal mentioned that the head of Ordnance Survey had recently resigned on "a matter of principle" and that, prior to this, he had actively promoted a policy of cutting data costs to increase sales.

The Board agreed that a representation from TSUNAMI should be made to the Royal Society delegation. Dougal Goodman asked for suggestions of material to include in such a letter and the following suggestions were made:

- The relative cost of data is too high in comparison with our competitors (in the US and Europe).
- The US has seen an exponential growth in its "Weather Risks" derivatives market, whereas only a small number of contract have been sold in the UK. The high cost of weather station data is seen as a barrier to the development of this market.
- Catastrophe models have seen reduced take-up in the UK, compared with the US, and a large element of their development cost (particularly in the UK) is in respect of data.
- The Wind Hazards project proposal has been hampered by the infeasible cost of data.
- There was a lack of market knowledge and inflexibility in the pricing and packaging of data within the data providing agencies.
- The failure of agencies to enter into a meaningful dialogue about data requirements also impacted on their functioning as "value added" consulting operations.

It was also requested that the representation should be careful to communicate that the industry appreciated that data agencies should operate on a commercially viable basis and it was not simply asking for "something for nothing".

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Action – Dougal Goodman and TSUNAMI

b) Visit to Southampton Oceanography Centre (SOC) and the Centre for Coastal and Marine Studies (CCMS)

Dougal Goodman confirmed that an invitation to visit either the SOC or CCMS had been extended to the TSUNAMI Board. Details of a proposed trip will follow in the near future, explaining its purpose and value.

Action - TSUNAMI

9. Date of Next Meeting

This was not discussed at the meeting, but will be held early in the New Year.

Action - TSUNAMI

10. Presentation by Professor Richard Holdaway, Rutherford Appleton Laboratory, on Remote Sensing

Professor Holdaway opened by explaining how Lance Garrard had invited him to present to TSUNAMI following a presentation to the Institute of Civil Engineers' Hazard Forum.

Rutherford Appleton Laboratory (RAL) is the largest space science and technology unit in Europe, leading the UK's space research effort alongside Mullard Space Science Laboratory. RAL's activities encompass earth observation, space science and the analysis of data from space-borne sensors. In particular, NOAA (the US National Oceanic and Atmospheric Administration) used solar observation data, from 1.5 million kilometres from the Earth, downloaded, processed and forwarded by RAL.

Professor Holdaway explained that all hazards could be monitored from space and that the essential elements for such monitoring were "coverage", "regular updates" (with near real-time processing) and "high resolution". However, flooding, which was still the greatest cause of fatalities, did not require a resolution of any greater than 50 metres. The annual cost of disasters was estimated at $400 Billion.

The three main technologies for monitoring were based optical, infrared (IR) and synthetic aperture radar (SAR) imagery. Top performing (classified, military) optical technology was believed to provide a 1cm resolution. IR provided ideal data for monitoring sea-surface temperature and SAR had the ability to see through clouds and partially through ground.

With global earth observations, it had been determined that the eruption of Mt Pinatubo had released some billions of tonnes of sulphur dioxide into the atmosphere, which had practically enveloped the globe within 20 months.

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Solar observations also allowed the determination of the contribution made by the Sun to global warming. A recently published paper would propose that the contribution by man's activities and the Sun's to recent global warming could be attributed equally on a 50:50 basis.

The Advanced Composite Explorer, which was positioned between the Sun and Earth, was providing near real-time warnings to power stations on the dangers from the induction of caused by flux in the Earth's magnetic field.

Current speculative research coming from Russia promised the possibility of forecasting earthquakes based on observations from space of modifications in the ionosphere, with a lead-time of one to five days. Based on such observations, more accurate warnings may be obtained from drops in Radon levels, as a precursor to earthquakes, which could be monitored at ground level.

Looking forward, Professor Holdaway predicted that improved technology would enable the significant (of the order of 10-fold) reduction in payload and energy requirements for satellite-borne monitors. Also, the theoretically required number of sensors to observe the entire globe was estimated at 180 based on optical, IR and SAR imagery.

Teledesic, a communications network proposed by MicroSoft, with some 288 satellites positioned at an altitude of some 1,375 kilometres, had offered to carry the required number of sensors. However, the funding of this system would amount to some $600 million, which was a mere fraction of the total annual disasters budget of $400 billion, but was beyond the reach of most organisations.

Assuming that funding could be obtained, from commerce, governments or supra-national agencies such as the United Nation or the World Bank, there was a pressing need to understand the physics, fix the specification requirements for the sensors and to build the instruments.

Professor Holdaway asked whether TSUNAMI would be interested in developing an involvement in the discussions of the system requirements. Lynn Dimmock expressed a positive interest, whereas David Simmons, Mike Cooper and Paul Brand said they would need to consult internally. Peter Taylor said that he was potentially interested in discussing the utilisation of data coming from such an operation and was interested in TSUNAMI setting out how remote-sensing data could be used in the UK.

Dougal Goodman suggested that a paper should be put together by TSUNAMI, discussing the application of remote sensing data, and targeted at the head of the British National Space Centre, Dr Colin Hicks. The Board supported this.

Action – Dougal Goodman and TSUNAMI