

M₂D

Models to Decisions

Decision Making Under Uncertainty

M2D Conference 2017

University of Exeter
11 – 14th July 2017

Streatham Court
University of Exeter
EX4 4QQ

www.models2decisions.org
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M2D Conference 2017

Welcome Note

Dear Colleague,

Welcome to the 2017 Models to Decisions conference.

Models to Decisions is a network funded by a consortium of the Research Councils. Its aim is to bring together all those interested in the use of mathematical, numerical and statistical models in decision making. This includes the decision makers as well as academics studying models and decision making. Mathematical models may appear to be deterministic but they are subject to uncertainty which needs to be taken into account when making decisions. The first theme of the network is the quantification of uncertainty in complex numerical or mathematical models. Decision making is still largely carried out by people and not machines and different decision makers interpret and handle the results from models (and the attendant uncertainty) differently. The second theme of the network is investigating how decision makers use the model output to make decisions. Most decision makers are not experts in handling uncertain information, and even experts frequently get it wrong. The third theme of the network is how we communicate uncertainty, in both words and pictures, to help decision makers. These three themes cover a wide range of academic disciplines from mathematics to psychology, philosophy and the humanities. This wide range of disciplines is reflected in the invited and contributed talks and posters at the conference. One of the challenges we have set speakers is to make the talks accessible to all.

Among the deliverables from the network is a **research agenda** for the Research Councils. The invited sessions include a panel session as well as talks and one of the aims of these sessions is to elicit a draft research agenda from participants. Please participate in these sessions and let us know your views. There will be an opportunity on Friday to sum up and engage in a wider discussion. Other highlights of the week include a session from our sister network CRUISSE (Challenging Radical Uncertainty in Science, Society and the Environment) and a session on decision making from the decision makers' perspective.

Thank you for attending and enjoy the conference.

Yours sincerely,

Peter Challenor and Catherine Powell,
On behalf of the Scientific Committee.



Scientific Programme

The aim of the conference is to provide a forum for researchers and decision makers from a wide range of disciplines and working backgrounds to come together to discuss topical challenges in the area of Decision Making Under Uncertainty, in scenarios where decisions are informed by models.

The Conference Programme has been organised by Prof Peter Challenor (University of Exeter) and Dr Catherine Powell (University of Manchester) of M2D, with the help of the Scientific Committee:

The Scientific Committee:

Dr Veronica Bowman (Dstl)
Prof Richard Bradley (London School of Economics)
Dr Matt Butchers (Knowledge Transfer Network)
Prof Richard Clayton (University of Sheffield)
Dr Alejandro Diaz (University of Liverpool)
Prof Mark Girolami (Imperial College London)
Dr Julie Gore (University of Bath)
Dr James Lyons (University of Exeter)
Prof Dave Woods (University of Southampton)

Also with thanks to:

Dr Emma Clarke, M2D

And our M2D Conference Volunteers.



Tuesday 11th July

| | |
|-------|---|
| 12:00 | Registration & Lunch on arrival |
| 13:50 | M2D Welcome Talk |
| 14:00 | Session 1: The Role of Applied Mathematics in Models and Decision Making |
| | <ul style="list-style-type: none">▪ Marco A. Iglesias (University of Nottingham) |
| | <ul style="list-style-type: none">▪ Leonardo Rojas Nandayapa (University of Liverpool) |
| | <ul style="list-style-type: none">▪ Lorna Wilson (University of Bath) |
| | Session Chairs: Alejandro Diaz (University of Liverpool), Matt Butchers (Knowledge Transfer Network) |
| 15:45 | Tea & Coffee |
| 16:15 | Dr Gary Mirams (University of Nottingham) |
| | Minimising uncertainty in models of ion channel currents |
| 16:35 | Dr G.Charles-Cadogan (University of Leicester) |
| | Harmonic Probability Weighting Functions And Resolution of The Preference Reversal Puzzle |
| 16:55 | Dr Andrea Taylor (University of Leeds) |
| | Communicating uncertainty in seasonal climate forecasts |
| 17:15 | Evening Welcome & Poster Reception |
| 19:00 | Close |

Wednesday 12th July

| | |
|-------|---|
| 09:00 | Arrival Tea & Coffee |
| 09:15 | Session 2: The Role of Visualisation in Models and Decision Making |
| | <ul style="list-style-type: none"> ▪ Julian Gunn (University of Sheffield) |
| | <ul style="list-style-type: none"> ▪ Neil Kaye (Met Office) |
| | <ul style="list-style-type: none"> ▪ Glyn Mottershead (Cardiff University) |
| | Session Chairs: James Lyons (University of Exeter), Richard Clayton (University of Sheffield) |
| 11:00 | Tea & Coffee |
| 11:30 | Dr Valerie Livina (National Physical Laboratory) |
| | Quantifying carbon emissions and saving in the UK energy system |
| 11:50 | Prof Willy Aspinall (Bristol University) |
| | The Irrefutable Advance of Uncertainty Quantification based on Structured Expert Elicitation |
| 12:10 | Dr Rutger Dankers (Met Office) |
| | Weather to Decisions: using probabilistic weather forecasts to inform decision-making |
| 12:30 | Lunch |
| 13:30 | Session 3: The Role of Statistics in Models and Decision Making |
| | <ul style="list-style-type: none"> ▪ Tony O'Hagan (University of Sheffield) |
| | <ul style="list-style-type: none"> ▪ Jim Smith (University of Warwick) |
| | <ul style="list-style-type: none"> ▪ Lindsay Lee (University of Leeds) |
| | Session Chairs: David Woods (University of Southampton); Mark Girolami (Imperial College London) |
| 15:15 | Tea & Coffee |
| 16:45 | Close |

Thursday 13th July

| | |
|-------|---|
| 09:15 | Arrival Tea & Coffee |
| 09:30 | Prof Liz Varga (Cranfield University) |
| | The ability of models to predict the effects of policy decisions |
| 09:50 | Dr Jooyoung Jeon (University of Bath) |
| | Optimal aggregation for uncertainty forecasts of smart metered electricity demand |
| 10:10 | Prof Tom Anderson (NOC Southampton) |
| | Communicating the projections of global warming by climate models to a public audience: my experiences |
| 10:30 | Tea & Coffee |
| 11:00 | Uncertainty from the Decision Makers Perspective: A Decision Makers Led Session |
| | <ul style="list-style-type: none"> ▪ Veronica Bowman (Dstl) ▪ Andrew Jones (MA) ▪ Joel Howard (Reachback) |
| 12:45 | Lunch |
| 13:45 | CRUISSE (Challenging Radical Uncertainty in Science, Society and the Environment): A Network Led Session |
| 15:15 | Tea & Coffee |
| 15:45 | Session 4: The Role of Philosophy & Social Sciences in Models and Decision Making |
| | <ul style="list-style-type: none"> ▪ Casey Helgeson (HEC Paris) ▪ Magda Osman (Queen Mary's London) ▪ Antony Millner (London School of Economics) |
| | Session Chairs: Richard Bradley (London School of Economics) |
| 17:45 | Opportunity to visit RMets Annual Conference 2017 Evening Poster Session |
| 18:45 | Conference Dinner (Woodbridge Restaurant, Reed Hall) |

Friday 14th July

| | |
|-------|---|
| 09:00 | Arrival Tea & Coffee |
| 09:15 | Session 5: The Role of Psychology in Models and Decision Making |
| | ▪ Rob Hutton (Trimetis Ltd) |
| | ▪ Wendy Jephson (SYBENETIX) |
| | ▪ Thomas Ormerod (University of Sussex) |
| | Session Chair(s): Julie Gore (University of Bath) |
| 11:00 | Tea & Coffee |
| 11:30 | Dr Christopher Street (University of Huddersfield) |
| | Adaptive decision making in deceptive environments |
| 11:50 | Prof Jonathan Linton (University of Sheffield) |
| | Using exotic options for mitigating risk in R&D on competing technologies |
| 12:10 | Concluding Session |
| 12:50 | Lunch |
| 13:50 | Depart at leisure, or register in for the afternoon workshops session of the RMetS Annual Conference 2017 |

The Role of Applied Mathematics in Models and Decision Making

Applied mathematicians, like pure mathematicians, are concerned with the existence and uniqueness of solutions to theoretical problems. Additionally, they are interested in overcoming the obstacles posed by implementing such solutions to solve practical challenges. In order to do this, they frequently design models of the physical world and translate these models as computational experiments to verify their hypotheses. However, reality is subtle, complex and full of uncertainties that need to be quantified. In this session, we will discuss the role of Applied Mathematics in uncertainty quantification and decision making through a range of real-world problems. Some of these problems include commercial farming, the outbreak of epidemics, oil exploration, telecommunications and economic systems. We will also discuss how the interaction of applied mathematicians with different academic communities and industry lies at the heart of multidisciplinary.

Speakers:

Dr. Lorna Wilson is a Commercial Research Associate at the University of Bath. She holds a PhD from the University of Nottingham and an MMath in Mathematics from University of Oxford. She has worked on a wide range of industrial mathematical problems, from analysing the decision making of chickens in commercial farms to modelling the outbreak of the swine flu epidemic. Her vast applied mathematical expertise includes statistical modelling, network modelling, probability and stochastic analysis. Specific research interests include the relative merits of – and the intersection between - stochastic and deterministic modelling, collective dynamics, complexity theory, network science, and econometrics.

Dr. Marco Iglesias is a lecturer in scientific computation at the School of Mathematical Sciences, University of Nottingham. He received his PhD from the Institute for Computational Engineering and Sciences, University of Texas at Austin. He has held postdoctoral positions at the Department of Civil and Environmental Engineering at MIT as well as the Mathematics Institute at the University of Warwick . His main research interest is the solution of PDE-constrained inverse problems. In particular, his area of expertise lies in the computational aspects of classical and Bayesian inverse problems that arises from large-scale applications.

Dr. Leonardo Rojas is a lecturer at the Department of Mathematical Sciences, University of Liverpool. He holds a PhD degree in Science from Aarhus University. He is the recipient of an ARC Discovery Early Career Research Award 2013-2016. He has held lecturer positions at the University of Queensland and at the Mexico Autonomous Institute of Technology. His research interests include rare-event simulation, risk theory, queueing theory, extreme value theory and stochastic stability. His work has applications in insurance, finance, telecommunications and biology.

Session Chairs: Alejandro Diaz (University of Liverpool), Matt Butchers (Knowledge Transfer Network)

The Role of Visualisation in Models and Decision Making

Modelling and communicating uncertainty is difficult, and visualisation can have an important role to play. The aim of this session is to explore the perspectives of people working in cardiology, climate science and data journalism in order to understand some of the strategies, challenges and possibilities offered by visualising uncertainty, and what might be learned from thinking across their respective fields.

Speakers:

Julian Gunn (Department of Infection, Immunity & Cardiovascular Disease, University of Sheffield) was trained in Medicine at Cambridge, and took junior hospital posts around England before being appointed Clinical Lecturer in Cardiology at the University of Sheffield in 1994 and BCS Young Investigator of the Year 1995. Julian also received training in Cardiology in Sheffield, and in coronary angioplasty by Professor David Cumberland, and was appointed Senior Lecturer in 2000 and became Reader in Interventional Cardiology in 2014 and Professor in 2016. Julian is a member of the Cardiovascular Biomechanics theme, with strong links with the Medical Physics Group, within the Department of Cardiovascular Science, and the Insigneo Institute for in silico medicine.

Neil Kaye (Met Office) did a Geography degree at Southampton University and then a GIS Masters at the University of Leicester. He joined the technology department of the Met Office in 2002 and then moved to Climate Science area in 2008. In the last few years he has specialised in developing methods of visualising uncertainty in data. He also creates bespoke visualisations and customer focussed web tools to visualise and analyse climate data.

Glyn Mottershead (co-director of the MSc Computational and Data Journalism, Cardiff University). A former newspaper reporter, feature writer, subeditor and production journalist, Glyn has worked across a range of news beats including crime, health and local government. Glyn is a co-author of The 21st Century Journalism Handbook and specialises in Digital Journalism and Data Journalism. He is a member of Investigative Reporters and Editors, and the Online News Association.

Session Chairs: James Lyons (University of Exeter), Richard Clayton (University of Sheffield)

The Role of Statistics in Models and Decision Making

Statistical methodology can combine data and models to quantify and reduce uncertainty, and support decision making. This session will explore the development, application and communication of such methods by sharing the insights and experiences of three expert speakers, and through discussion and debate with the audience.

Speakers:

Tony O'Hagan (University of Sheffield) Uncertainty, Statistics and Decision Support

Tony O'Hagan is an Emeritus Professor at the University of Sheffield. His research interests are in the theory and application of Bayesian statistics, including elicitation of expert knowledge, managing and quantifying uncertainty in complex mechanistic models, and in Bayesian modelling generally.

Lindsay Lee (University of Leeds) The Role of Sensitivity Analysis in Decision Support

Lindsay Lee is a Leverhulme Research Fellow in the School of Earth and Environment at the University of Leeds. Her research interests include the application of advanced statistical methods to better understand Earth Science models and the visualisation of statistical results for scientific interpretation. Through working directly with atmospheric modellers, she has gained appreciation for the importance of their understanding her research, and her understanding the problems they are addressing.

Jim Smith (University of Warwick) Uncertainty, Decision and Causation

Jim Smith is a Professor of Statistics at the University of Warwick. His research interests span foundational, methodological and applied Bayesian statistics and decision theory. Particular interests include subjective Bayesian graphical models for big problems and causation, especially in a dynamic setting, Bayesian decision making, and combining expert judgments and elicitation.

Session chairs: Dave Woods (University of Southampton) and Mark Girolami (Imperial College London)

The Role of Philosophy & Social Sciences in Models and Decision Making

This session will look at the contribution of philosophy, economics and psychology to the study of decision making under uncertainty, both as separate disciplines and jointly. The focus of the session will be on normative questions concerning the nature of uncertainty and how decision making should reflect it. Two main issues will be addressed:

1. How uncertainty in its different forms is or should be conceptualised, represented and measured.
2. What tools are available to decision makers to manage this uncertainty.

Speakers:

Dr. Casey Helgeson is a Postdoctoral Researcher at the GREGHEC laboratory of the French National Centre for Scientific Research (CNRS) and HEC Paris. He holds a PhD in philosophy and a BS in mathematics from the University of Wisconsin — Madison. His research addresses topics in the philosophy of science, including modes of inference in contemporary and historical evolutionary biology, treatment of uncertainties in environmental modelling, and approaches to decision making under uncertainty.

Dr Magda Osman's (Psychology, Queen Mary's London) main research interests concern understanding the underlying mechanisms involved in learning, decision making, and problem solving in complex dynamic environments (e.g, biological (fitness), economic (stock market), ecological (rainforest), industrial (nuclear power plant), mechanical (automobile), management (company), and safety critical (automated-pilot) systems).

Dr Antony Millner (Economics, LSE) works on a variety of issues in economics, with a focus on applications to environmental problems. His current research projects include work on climate change economics, discounting, and the political economy of policy choice. Antony completed his PhD at Oxford University in 2010, and spent two years as a Ciriacy-Wantrup Postdoctoral Scholar in the Department of Agricultural and Resource Economics at the University of California, Berkeley. He also has a Masters degrees in Theoretical Physics and Applied Mathematics from Cambridge University and the University of Cape Town.

Session Chair: Richard Bradley (LSE)

The Role of Psychology in Models and Decision Making

Applied psychologists are concerned with taking models often derived from an experimental base to organizational settings to assist with complex, uncertain decision making and problem-solving. They also often work 'bottom up' and develop models from organizational contexts and then go back to the lab to assist understanding. Contextual differences can lead to different cognition, require different levels of socio-cognitive competence and models of expertise are often adapted to aid decision makers working in ill-defined situations where human beings are at the centre of the decision making process. Models can bridge human-computer interaction and/or be developed in areas where adaptive decision making cognition is required in uncharted areas. Some of the decision problems we will discuss are in the areas of defence, security and FinTech organisations.

Speakers

Rob Hutton is Principal Scientist/Director; Human Factors/Cognitive Systems Engineering -Trimetis Ltd. Rob is a registered member of the Chartered Institute of Ergonomics and Human Factors, the Human Factors & Ergonomics Society, and the European Association of Cognitive. He applies human factor techniques and models to complex socio-technical systems challenges in defence, aviation, healthcare and weather forecasting in the UK and US. He has run workshops in the areas of applying human factors in a systems context and cognitive systems engineering for the US DoD, USA Rugby, Environment Canada, BAE Systems, Singapore's DSTA, and UK MoD Defence Science & Technology Labs (Dstl).

Wendy Jephson is a Co-founder and Chief Behavioural Scientist of Sybenetix. Sybenetix is the leading Enterprise Behavioural Analytics™ company working with hedge funds, banks and asset managers to systematically improve investment performance, risk and conduct management at the individual, team and company-wide level. Its EBA System provides the unprecedented insight and behaviour management tools needed to improve decision-making skill, counter behavioural biases and poor conduct. Institutions use this single System to attract assets and build reputation.

Thomas C. Ormerod is Head of the School of Psychology at the University of Sussex. He is an eminent psychologist whose research has informed problem-solving, insight, reasoning, decision-making, expertise, investigative psychology, security screening, investigative expertise and design, creativity, and human-computer interaction in a range of organizational contexts.

Session Chair: **Julie Gore** (University of Bath)

Decision Makers Day

Uncertainty from the Decision Makers Perspective: A Decision Makers Led Session

This session will introduce a scenario which mimics some of the issues faced by decision makers when presented with uncertainty. The scenario will be described by Wing Commander Andrew Jones, a senior military advisor, supported by Joel Howard and Dr Veronica Bowman from Dstl. The different aspects of the scientific support required will then be introduced to give the audience an overview of current best practice. After the introduction, the session will be run interactively with the audience asked to assess, in groups, how the scientific advice could be improved by the effective communication of uncertainty and where there may be a requirement for further research to enable this improvement.

Group scenarios include:

Meteorology

Dispersion Hazard Modelling

Source Term Estimation (STE)

Alternative Courses Of Action

Decontamination

Decision Makers Day

CRUISSE (Challenging Radical Uncertainty in Science, Society and the Environment): A Network Led Session

Dr David Good (Session Chair) is a psychologist who has broad interests in human interaction and the consequences which follow for the individuals involved, personally, practically and socially. He teaches in the Department of Social & Developmental Psychology and is a Fellow of King's College. Until 2008, he was the Education Director for the Cambridge MIT Institute. He is a member of the University of Cambridge Council, and is a lay member of the Council of the Royal College of Art. He took up the role of Director of Education in the School of Biological Sciences - one of the six Schools into which the University is organised - in 2010. In 2001, he established the Crucible Network with Alan Blackwell to forge relationships between Technology researchers and those in the Arts Humanities and Social Sciences around the design of new technologies, and the development of technology policy. David's research is currently involved in two lines of work. The first is concerned with the development of new communication and information technologies, and how research from the Arts Humanities and Social Sciences can be usefully brought to bear on the design of new technologies. The second focusses on the development of the creative and innovative abilities of students, and how this prepares them for their future careers. This work builds on his time as Education Director of the Cambridge MIT Institute.

Dr Erica Thompson is a Research Officer at LSE's Centre for the Analysis of Time Series. Her research interests focus on realistic evaluation of model-derived information for decision-making, communication of the inherent uncertainty, and improving robustness and usability of the scientific information that is relevant for real-world decisions. She has extensive collaborations with real world decision-makers, and with the CRUISSE network is exploring ways to improve the use of simulation and modelling in various contexts. She has a PhD in climate physics.

Prof David Tuckett *University College London (UCL)* David is Professor and Director of the University College London (UCL) Centre for the Study of Decision-Making under Uncertainty and a Senior Research Fellow at the Kiel Institute for the World Economy. Trained in Economics, Medical Sociology and Psychoanalysis he has been studying asset managers since 2007. He is the author of "Minding the Markets: An Emotional Finance View of Financial Instability". He is leading Research Council UK's Network "Challenging Radical Uncertainty in Science, Society and the Environment (CRUISSE)" and among the leaders of the Economic and Social Research Council's (ESRC's) Re-Building Macroeconomics Network.

We will talk about our approach and take questions.



Challenging Radical Uncertainty in Science, Society and the Environment

The EPSRC-funded CRUISSE network aims to bring academics from disciplines in mathematical, physical, psychological, social and other sciences together to better understand and help practitioners who are making difficult decisions.

We will be looking to identify and categorise real-world challenges into three types:

(2) Challenges that require a broader approach, where models are developed and informative but not necessarily comprehensive, and mature probabilities are not available.

(1) Challenges that are tractable with traditional statistical and decision theoretic methods as practiced by our sister network "Models 2 Decisions"

(3) Challenges that are characterised by **radical uncertainty** and lack of confidence in model fidelity, requiring thoughtful case-by-case reflection, reframing of the question and innovative approaches to "solutions" or strategies.

We aim to develop useful guidelines for cases 2 and 3, including a guide to good practice, which will broaden the awareness of alternative approaches, exploring the way problems are being set up and framed in the light of the type of uncertainties identified.

Practitioners who are aware of the kinds of problems and solutions in each case, and where the problems of interest to them lie, will be a step closer to resilient decision-making, informed by seeing approaches to other hazards facing real-world decision making.

We will be funding short pilot projects in partnership with decision-making communities. Register your interest now to be kept up to date with funding availability.

Want to hear more about what we do?

Visit our website www.cruise.ac.uk

Got an interesting real-world problem that doesn't seem to be tractable with standard analytical methods?

Contact us on cruise@ucl.ac.uk

Want to get involved?

Join us at our first Network Conference, 21-22nd September 2017
in London: www.cruise.ac.uk/conference2017



RMets

Royal Meteorological Society

*Promoting meteorology as a science,
profession and interest*

Call for poster presentations now open
Submission deadline Friday 26th May

RMets Annual Conference 2017



**Weather and Climate Impacts:
From research and services to
application and policy**

Image courtesy of www.kallicornphotography.co.uk



This year's conference will provide a platform for the UK's research and interdisciplinary communities to come together to share recent findings and forge new collaborations.

Through a mixture of thought provoking plenary sessions, workshops, and poster sessions our conference will stimulate and foster new ideas around the research, services, technology and communication of weather and climate impacts.

13th- 14th July 2017 University of Exeter, UK

For more details and to register, please visit
our website www.rmets.org/annual2017



rmets.org



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[RMets](https://www.linkedin.com/company/RMets)



[rmets_](https://www.instagram.com/rmets_)

Things to do & see in Exeter

Exeter

Exeter is an ancient city with a modern feel. Pre-dating the arrival of the Romans in AD 50, the city has a long and rich history. This is reflected in its unique visitor attractions including the:

- Underground Passages,
- Royal Albert Memorial Museum,
- Exeter Cathedral,
- Roman wall,
- Historic quayside.

Exeter also offers a diverse selection of shopping options, with the large High Street names mixing in with the smaller independent shops and boutiques in the city's distinct shopping quarters.

Places to eat:

Exeter has established a reputation as one of the foodie capitals of the South West, from the weekly farmers' market selling field-fresh produce to the celebrated Exeter Street Food Market, cosy cafes to fine dining in award-winning restaurants.

In the evenings consider trying:

- The Firehouse (with a reputation of excellence for its pizzas, served in the evenings only)
- Rendezvous Wine Bar & Restaurant (an ever changing menu of fresh west and country fare, with an extensive wine list to accompany)
- Herbies (Specialising in an all Vegetarian menu)
- Las Iguanas (flame grilled Latin American dishes)
- Mill on the Exe (A beautiful and tranquil place to visit for both food and drink set aside the Blackaller Weir and Millston Footbridge)
- Typeydong (a contemporary noodle bar serving Chinese and Japanese dishes)
- The Imperial (a Weatherspoon's set in beautiful grounds, very close to campus)
- The Fat Pig (it's all about locally sourced produce and boasts it's own experimental brewery on site!)

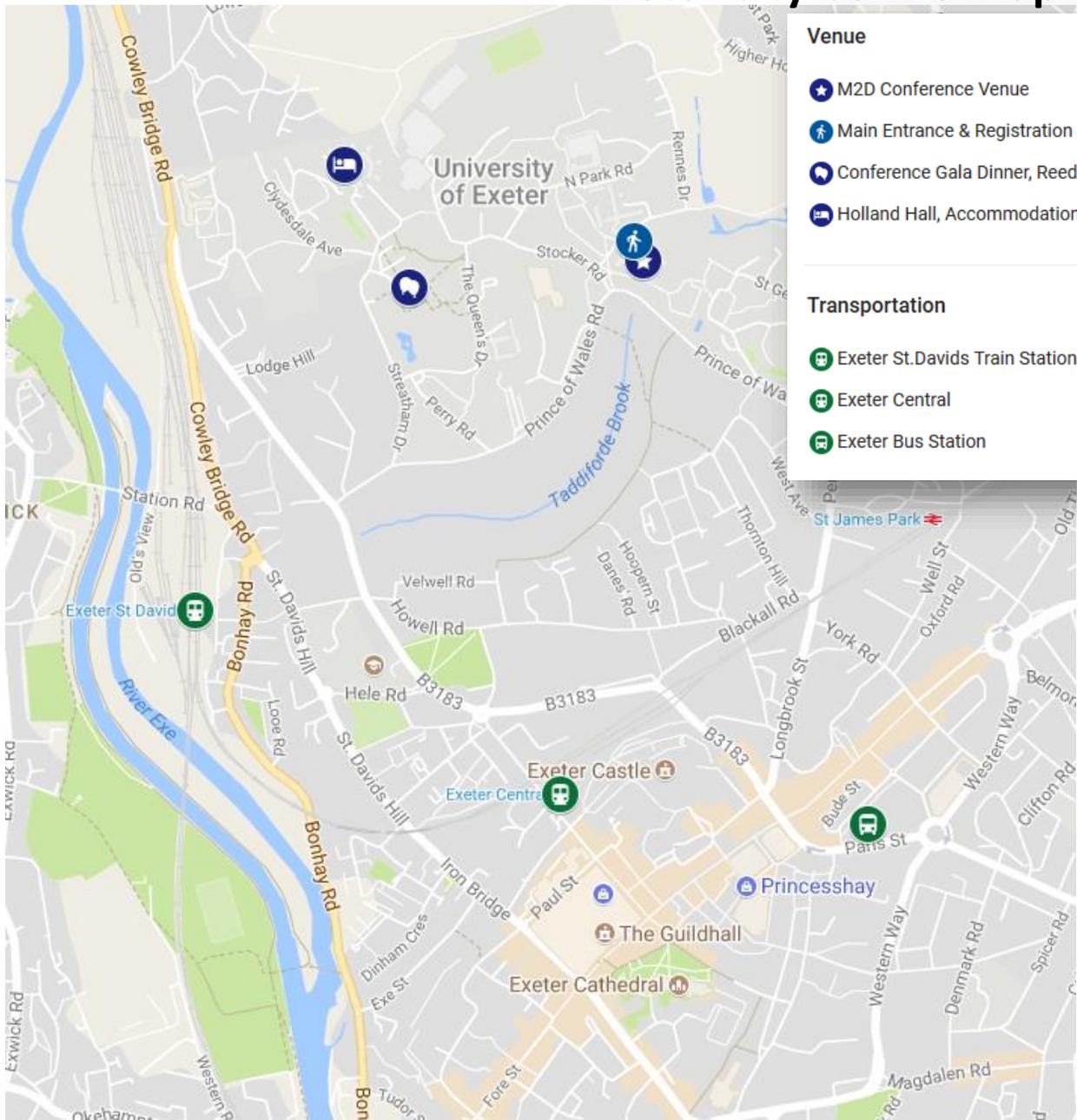
... among many other options ...

What's nearby:

Just 10 miles from Exeter easily accessible by train you will reach the Jurassic Coast, more than thirty miles of stunning UNESCO World Heritage Coastline, part of the 95 miles charting 185 million years of the Earth's history.

Travel west by bus, car or train and you will reach Dartmoor National Park. 954km² of moorland, forests, rivers, wetlands and tors. A great place for all manner of outdoor pursuits and many opportunities for good dining amidst an impressive landscape.

Exeter City Centre Map



Conference Gala Dinner

Woodbridge Restaurant



List of Contributed Talks

Full abstracts available online

Tuesday [16:15 - 16:35]

Minimising uncertainty in models of ion channel currents, Gary Mirams (University of Nottingham)

Tuesday [16:35 - 16:55]

Harmonic Probability Weighting Functions And Resolution of The Preference Reversal Puzzle, G. Charles-Cadogan (University of Leicester)

Tuesday [16:55 - 17:15]

Communicating uncertainty in seasonal climate forecasts, Andrea Taylor (University of Leeds)

Wednesday [11:30 - 11:50]

Quantifying carbon emissions and saving in the UK energy system, Valerie Livina (National Physical Laboratory)

Wednesday [11:50 - 12:10]

The Irrefutable Advance of Uncertainty Quantification based on Structured Expert Elicitation, Willy Aspinall (Bristol University)

Wednesday [12:10 - 12:30]

Weather to Decisions: using probabilistic weather forecasts to inform decision-making, Rutger Dankers (Met Office)

Thursday [09:30 - 09:50]

The ability of models to predict the effects of policy decisions, Liz Varga (Cranfield University)

Thursday [09:50 - 10:10]

Using temporal hierarchical probabilistic forecasting for peer to peer energy trading, Jooyoung Jeon (University of Bath)

Thursday [10:10 - 10:30]

Communicating the projections of global warming by climate models to a public audience: my experiences, Thomas Anderson (NOC Southampton)

Friday [11:30 - 11:50]

Adaptive decision making in deceptive environments, Christopher Street (University of Huddersfield)

Friday [11:50 - 12:10]

Using exotic options for mitigating risk in R&D on competing technologies, Jonathan Linton (University of Sheffield)

List of Posters

Full abstracts available online

Optimal aggregation for uncertainty forecasts of smart metered electricity demand, Mr Steve Alvarenga (University of Bath)

Communicating probability with natural frequencies and the equivalent binomial count, Prof Scott Ferson (University of Liverpool)

Advances in metamodelling techniques for industrial applications, Mr Alfredo Garbuno Iñigo (University of Liverpool)

Decisions and Communication of Weather Warnings: An Experiment Study, Prof Todd Kaplan (University of Exeter Business School)

Uncertainty quantification for numerical models with two solutions, Miss Louise Kimpton (University of Exeter)

Confidence in the EMODnet Broad-scale Seabed Habitat map for Europe, Dr Eleonora Manca (Joint Nature Conservation Committee)

Impacts of wind forecast uncertainty on the operation of interdependent energy networks., Dr Meysam Qadrdan (Cardiff University)

Uncertainty quantification of wrinkle defects in composites, Mr Anhadjeet Sandhu (University of Exeter)

Risk-based decision making for water quality failures caused by sewer overflows, Mr Ambuj Sriwastava (University of Sheffield)

Nonstationary Gaussian Process Emulator via Weighted Covariance Structure, Miss Victoria Volodina (University of Exeter)

Useful Information

Internet Access:

Unlimited WiFi is provided free of charge in all of our accommodation. Access passwords will be provided to you on request when you check in.

Instructions for WiFi access at the Conference Venue will be provided at the Conference. For those who already have eduroam access, you may sign in using your home institution's credentials.

Parking:

Residential delegates will be issued a free of charge Residential Car Parking Permit on key collection.

Please display your permit, marked with your car registration number, clearly in your vehicle.

Subject to availability, you may use any of the Residential campus car parks. If you are unable to find a residential car parking space, then you would be required to purchase a standard car parking ticket.

Day Delegates must purchase a car parking ticket from the machines located near to the car parks on campus. Full information including charges, accessibility and location of car parks can be found on the website www.exeter.ac.uk/visit/directions/carparks/

Travel Advice:

Taxi's: Apple Central Taxis, 3-4 Isambard Parade, Exeter EX4 4BX, Tel: 01392 66 66 66

Sat Nav: use postcode **EX4 4QQ**

Campus Amenities:

The University has a range of cafés and restaurants on campus including:

- Reed Hall Restaurant and Café
- Costa Coffee, upstairs at the Forum
- La Touche Café, in Building: One, The Business School
- Northcott Theatre Bar, upstairs at Northcott Theatre

Useful shops located around the campus include the Market Place, located in both the Forum and Cornwall House providing take away food including sandwiches and snacks, groceries, confectionery, alcohol, newspapers, stationery and toiletries.

There are 2 banks on Campus, both with ATM machines.

- Natwest Bank: located on the ground floor of the Forum.
- Santander: located on the first floor of Devonshire House.

M₂D

Models to Decisions

www.models2decisions.org