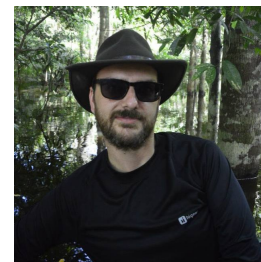


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## Research output

### **Toward a digital twin of the Great Barrier Reef: Impact of extreme model resolution on tidal simulations**

HILL, J., Vila-Concejo, A. & LEE, K., 1 Jun 2026, In: *Ocean Modelling*. 202, 102723.

### **The impact of antecedent topography on tsunami deposition**

HILL, J., 27 Feb 2026, In: *Natural Hazards*. 122, 254.

### **Evaluating the impact of the Storegga tsunami on Mesolithic communities in Northumberland**

Sharrocks, P. D. & Hill, J., 19 Dec 2023, (E-pub ahead of print) In: *Journal of Quaternary Science*. 15 p.

### **Resolving tsunami wave dynamics: Integrating sedimentology and numerical modelling**

Hill, J., Rush, G., Peakall, J., Johnson, M., Hodson, L., Barlow, N. L. M., Bowman, E. T., Gehrels, W. R., Hodgson, D. M. & Kesserwani, G., 14 Sept 2023, (E-pub ahead of print) In: *Depositional Record*. 20 p.

### **On the varied impact of the Storegga tsunami in northwest Scotland**

Woodroffe, S. A., Hill, J., Bustamante-Fernandez, E., Lloyd, J. M., Luff, J., Richards, S. & Shennan, I., 30 May 2023, (E-pub ahead of print) In: *Journal of Quaternary Science*. 14 p.

### **Tidal dynamics drive ooid formation in the Capricorn Channel since the Last Glacial Maximum**

Lee, K. C., Webster, J. M., Salles, T., Mawson, E. E. & Hill, J., 1 Dec 2022, In: *Marine Geology*. 454, 11 p., 106944.

### **Sea-level change, palaeotidal modelling and hominin dispersals: The case of the southern Red Sea.**

Hill, J., Avdis, A., Bailey, G. & Lambeck, K., 1 Oct 2022, In: *Quaternary Science Reviews*. 293, 15 p., 107719.

### **Sea level rise and the Great Barrier Reef the future implications on reef tidal dynamics**

Mawson, E. E., Lee, K. C. & Hill, J., 4 Aug 2022, (E-pub ahead of print) In: *Journal of Geophysical Research: Oceans*. 127, 8, p. e2021JC017823

### **Prediction of shoreline–shelf depositional process regime guided by palaeotidal modelling**

Collins, D. S., Avdis, A., Wells, M. R., Dean, C. D., Mitchell, A. J., Allison, P. A., Johnson, H. D., Hampson, G. J., Hill, J. & Piggott, M. D., Dec 2021, In: *Earth-Science Reviews*. 223, 39 p., 103827.

### **Detailing the impact of the Storegga Tsunami at Montrose, Scotland**

Bateman, M. D., Kinnaird, T. C., Hill, J., Ashurst, R. A., Mohan, J., Bateman, R. B. I. & Robinson, R., 3 Jun 2021, In: *Boreas*. 50, 4, p. 1059-1078

### **Morphodynamic controls for growth and evolution of a rubble coral island**

Talavera, L., Vila-Concejo, A., Webster, J. M., Smith, C., Duce, S., Fellowes, T. E., Salles, T., Harris, D., Hill, J., Figueira, W. & Hacker, J., 19 Apr 2021, In: *Remote Sensing*. 13, 8, 1582.

### **A new methodology for performing large scale simulations of tsunami generated by deformable submarine slides**

Smith, R. C., Hill, J., Mouradian, S., Piggott, M. D. & Collins, G. S., Sept 2020, In: *Ocean Modelling*. 153, 101674.

### **Modelling the impact of tidal range energy on species communities**

Baker, A. L., Craighead, R. M., Jarvis, E. J., Stenton, H. C., Angeloudis, A., Mackie, L., Avdis, A., Piggott, M. D. & Hill, J., 1 Aug 2020, In: *Ocean and Coastal Management*. 193, 13 p., 105221.

### **Aragonite bias exhibits systematic spatial variation in the late Cretaceous Western Interior Seaway, North America**

Dean, C., Allison, P. A., Hampson, G. & Hill, J., 23 Sept 2019, (E-pub ahead of print) In: *Paleobiology*.

### **Reconciling Storegga tsunami sedimentation patterns with modelled wave heights: a discussion from the Shetland Isles field laboratory.**

Dawson, A., Dawson, S., Bondevik, S., Costa, P., Hill, J. & Stewart, I., 24 Jun 2019, In: *Sedimentology*. p. 1-10 10 p.

### **HRDS: A Python package for hierarchical raster datasets**

Hill, J., 13 May 2019, In: *Journal of open source software*. 4, 37, 2 p., 1112.

### **The trade-off between tidal-turbine array yield and environmental impact: a habitat suitability modelling approach**

du Feu, R. J., Funke, S., Kramer, S. C., Hill, J. & Piggott, M. D., 4 May 2019, (E-pub ahead of print) In: *Renewable Energy*. 143, p. 390-403 14 p.

### **Controls on tidal sedimentation and preservation: Insights from numerical tidal modelling in the Late Oligocene–Miocene South China Sea, Southeast Asia**

Collins, D., Avdis, A., Allison, P. A., Johnson, H. D., Hill, J. & Piggott, M. D., 23 Mar 2018, In: *Sedimentology*. 55 p.

### **Efficient unstructured mesh generation for marine renewable energy applications**

Candy, A. S., Avdis, A., Hill, J., Kramer, S. C. & Piggott, M. D., 19 Sept 2017, (E-pub ahead of print) In: *Renewable Energy*. p. 1-40 40 p.

### **The trade-off between tidal-turbine array yield and impact on flow: A multi-objective optimisation problem**

du Feu, R. J., Funke, S. W., Kramer, S. C., Culley, D. M., Hill, J., Halpern, B. S. & Piggott, M. D., 20 Jul 2017, In: *Renewable Energy*.

### **Was Doggerland catastrophically flooded by the Mesolithic Storegga tsunami?**

Hill, J., 19 Jul 2017, (Submitted).

### **Tidal dynamics and mangrove carbon sequestration during the Oligo-Miocene in the South China Sea**

Collins, D. S., Avdis, A., Allison, P. A., Johnson, H. D., Hill, J., Piggott, M. D., Hassan, M. H. A. & Damit, A. R., 15 Jun 2017, In: *Nature Communications*. 8, 12 p., 15698.

### **Application of the adjoint approach to optimise the initial conditions of a turbidity current with the AdjointTurbidity 1.0 model**

Parkinson, S. D., Funke, S. W., Hill, J., Piggott, M. D. & Allison, P. A., 7 Mar 2017, In: *Geoscientific Model Development*. 10, 3, p. 1051-1068 18 p.

### **Global cooling as a driver of diversification in a major marine clade**

Davis, K., Hill, J., Astrop, T. & Wills, M., 4 Oct 2016, In: *Nature Communications*. 7, 8 p., 13003.

### **Comparing approaches for numerical modelling of tsunami generation by deformable submarine slides**

Smith, R. C., Hill, J., Collins, G. S., Piggott, M. D., Kramer, S. C., Parkinson, S. D. & Wilson, C., 1 Apr 2016, In: *Ocean Modelling*. 100, p. 125-140 16 p.

### **Adaptive Haar wavelets for the angular discretisation of spectral wave models**

Adam, A., Buchan, A. G., Piggott, M. D., Pain, C. C., Hill, J. & Goffin, M. A., 15 Jan 2016, In: *Journal of Computational Physics*. 305, p. 521-538 18 p.

### **Submarine landslides on the Great Barrier Reef shelf edge and upper slope: A mechanism for generating tsunamis on the north-east Australian coast?**

Webster, J. M., George, N. P. J., Beaman, R. J., Hill, J., Puga-Bernabéu, Á., Hinestrosa, G., Abbey, E. A. & Daniell, J. J., 1 Jan 2016, In: *Marine Geology*. 371, p. 120-129 10 p.

**Lateglacial and Holocene relative sea-level changes and first evidence for the Storegga tsunami in Sutherland, Scotland**  
Long, A. J., Barlow, N. L. M., Dawson, S., Hill, J., Innes, J. B., Kelham, C., Milne, F. D. & Dawson, A., 2016, In: *Journal of Quaternary Science*. 31, 3, p. 239-255 17 p.

**Tidal resource extraction in the Pentland Firth, UK: Potential impacts on flow regime and sediment transport in the Inner Sound of Stroma**  
Martin-Short, R., Hill, J., Kramer, S. C., Avdis, A. & Piggott, M. D., 1 Apr 2015, In: *Renewable Energy*. 76, p. 596-607

**BioAcoustica: a free and open repository and analysis platform for bioacoustics**  
Baker, E., Price, B. W., Rycroft, S. D., Hill, J. & Smith, V. S., 2015, In: *Database*. 2015, bav054.

**Not all aragonitic molluscs are missing: taphonomy and significance of a unique shelly lagerstätte from the Jurassic of SW Britain**  
Jordan, N., Allison, P. A., Hill, J. & Sutton, M. D., 2015, In: *Lethaia*.

**How does multiscale modelling and inclusion of realistic palaeobathymetry affect numerical simulation of the Storegga Slide tsunami?**  
Hill, J., Collins, G. S., Avdis, A., Kramer, S. C. & Piggott, M. D., 1 Nov 2014, In: *Ocean Modelling*. 83, p. 11-25 15 p.

**Direct numerical simulations of particle-laden density currents with adaptive, discontinuous finite elements**  
Parkinson, S. D., Hill, J., Piggott, M. D. & Allison, P. A., 5 Sept 2014, In: *Geoscientific Model Development*. 7, 5, p. 1945-1960 16 p.

**Adapting to life: ocean biogeochemical modelling and adaptive remeshing**  
Hill, J., Popova, E. E., Ham, D. A., Piggott, M. D. & Srokosz, M., 1 Sept 2014, In: *Ocean Science*. 10, 3, p. 323-343 21 p.

**The Supertree Toolkit 2: a new and improved software package with a Graphical User Interface for supertree construction**  
Hill, J. & Davis, K., 26 Mar 2014, In: *Biodiversity Data Journal*. 2, p. e1053

**Exploiting Parallel R in the Cloud with SPRINT**  
Piotrowski, M., McGilvary, G. A., Sloan, T. M., Mewissen, M., Lloyd, A. D., Forster, T., Mitchell, L., Ghazal, P. & Hill, J., 2013, In: *Methods of Information in Medicine*. 52, 1, p. 80-90

**Preservation of forcing signals in shallow water carbonate sediments**  
Hill, J., Wood, R., Curtis, A. & Tetzlaff, D. M., 1 Nov 2012, In: *Sedimentary geology*. 275-276, p. 79-92 14 p.

**On the performance of a generic length scale turbulence model within an adaptive finite element ocean model**  
Hill, J., Piggott, M. D., Ham, D. A., Popova, E. E. & Srokosz, M. A., Oct 2012, In: *Ocean Modelling*. 56, p. 1-15 15 p.

**Optimisation and parallelisation of the partitioning around medoids function in R**  
Piotrowski, M., Sloan, T. M., Mewsissen, M., Forster, T., Mitchell, L., Petrou, S., Dobrzelecki, B., Ghazal, P., Trew, A. & Hill, J., 1 Jul 2011, *High Performance Computing and Simulation (HPCS), 2011 International Conference on*. p. 707-713 7 p.

**Optimization of a parallel permutation testing function for the SPRINT R package**  
Petrou, S., Sloan, T. M., Mewissen, M., Forster, T., Piotrowski, M., Dobrzelecki, B., Ghazal, P., Trew, A. & Hill, J., 2011, In: *Concurrency and Computation: Practice and Experience*. 23, 17, p. 2258-2268 11 p.

**The supertree tool kit**  
Davis, K. E. & Hill, J., 2010, In: *BMC research notes*. 3, p. 95 1 p.

### **Modeling shallow marine carbonate depositional systems**

Hill, J., Tetzlaff, D., Curtis, A. & Wood, R., Sept 2009, In: Computers & geosciences. 35, 9, p. 1862-1874 13 p.

### **Performance of a Lattice Quantum Chromodynamics kernel on the Cell processor**

Spray, J., Hill, J. & Trew, A., 1 Nov 2008, In: Computer Physics Communications. 179, 9, p. 642-646 5 p.

### **How Design of Online Learning Materials can Accommodate the Heterogeneity in Student Abilities, Aptitudes and Aspirations**

Bates, S. P., Hardy, J., Hill, J. & McKain, D., 2008, In: Learning and Teaching in Higher Education Journal. 2, p. 3-25 23 p.

### **SPRINT: a new parallel framework for R**

Hill, J., Hambley, M., Forster, T., Mewissen, M., Sloan, T. M., Scharinger, F., Trew, A. & Ghazal, P., 2008, In: BMC Bioinformatics. 9, p. 558 1 p.

### **Tracking and Visualisation of Student Use of Online Learning Materials in a Large Undergraduate Course: Advances in Web Based Learning – ICWL 2007**

Hardy, J., Bates, S., Hill, J. & Antonioletti, M., 2008, *Advances in Web Based Learning – ICWL 2007*. Leung, H., Li, F., Lau, R. & Li, Q. (eds.). Springer, Vol. 4823. p. 464-474 11 p. (Lecture Notes in Computer Science).

### **Complexity in Carbonate Systems**

Hill, J., Curtis, A., Wood, R. A. & Tetzlaff, D. M., 2005, *GIS and Spatial Analysis, Vol 1 and 2*. Cheng, Q. & BonhamCarter, G. (eds.). p. 1141-1146 6 p.

## **Activities**

### **Tsunami risk to UK offshore wind: Palaeo-evidence and numerical model simulations**

HILL, J. (Examiner (external))  
28 Nov 2024

### **Advancing Coastal Ocean Modelling through Deep Learning and Remote Sensing Data Integration**

HILL, J. (Examiner (external))  
17 Sept 2024

### **International Coral Reef Symposium**

Hill, J. (Advisor)  
3 Jul 2022 → 8 Jul 2022

### **Resolving the tsunami wave: interpreting palaeotsunami deposits by integrating numerical modelling and sedimentology**

Hill, J. (Speaker)  
25 Sept 2019

### **Resolving the tsunami wave: interpreting palaeotsunami deposits by integrating numerical modelling and sedimentology**

Hill, J. (Keynote/plenary speaker)  
9 Sept 2019

### **Evolution 2019**

Hill, J. (Advisor)  
21 Jun 2019 → 25 Jun 2019

### **XXXVIII Annual Meeting of the Willi Hennig Society**

Hill, J. (Advisor)  
26 May 2019 → 29 May 2019

**Univ Sydney**

Hill, J. (Collaborator)

24 Sept 2018 → 24 Nov 2018

**Do palaeotides make a difference to our estimates of the size of the Storegga tsunami?**

Hill, J. (Speaker)

29 Nov 2017

**The interaction of tides and tsunami**

Hill, J. (Speaker)

4 Sept 2017 → 5 Sept 2017

**Evolution 2017**

Hill, J. (Participant)

23 Jun 2017 → 28 Jun 2017

**iEvoBio**

Hill, J. (Participant)

23 Jun 2017

**Mozilla Science Lab Bi-monthly Community Call**

Hill, J. (Speaker)

13 Apr 2017

**Year 12 Pathways to STEM**

Hill, J. (Presenter)

1 Mar 2017

**Tools and methods for constructing the Tree of Life**

Hill, J. (Organiser)

19 Dec 2016 → 20 Dec 2016

**'Good enough' practice in computational Geography**

Hill, J. (Organiser)

28 Nov 2016

**58th Phylogenetic Symposium "Evolution meets Ecology"**

Hill, J. (Participant)

18 Nov 2016 → 20 Nov 2016

**Automatically creating large phylogenies**

Hill, J. (Invited speaker)

23 Mar 2016

**Recreating the Mesolithic Storegga tsunami event**

Hill, J. (Invited speaker)

17 Mar 2016

**The terrifying tsunami that devastated Britain**

Hill, J. (Interviewee)

1 Mar 2016

**Arthur Holmes Meeting 2015 - Tsunami Hazards and Risks: Using the Geological Record**

Hill, J. (Participant)

25 Sept 2015

**Evolution 2015**

Hill, J. (Participant)

26 Jun 2015 → 30 Jun 2015

**SupertreeToolkit Workshop**

Hill, J. (Organiser)

15 Dec 2014

**OpenTree Hackathon**

Hill, J. (Participant)

15 Sept 2014 → 19 Sept 2014

**Prehistoric North Sea 'Atlantis' hit by 5m tsunami**

Hill, J. (Interviewee)

1 May 2014