

The Role for the ISC in the 21st Century

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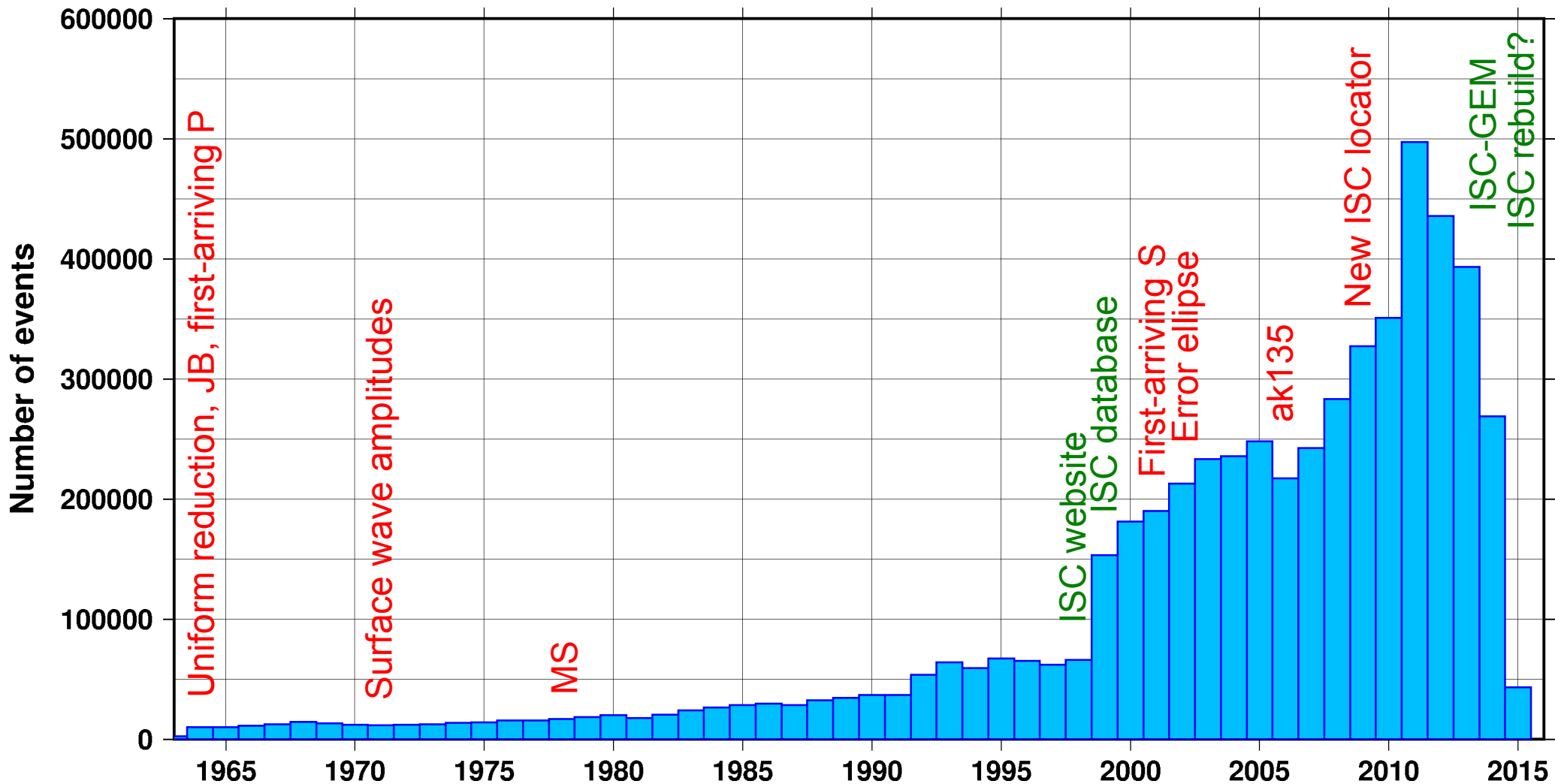
Outline

- The past 50 years
 - Achievements
 - Evolution of ISC procedures
- Challenges
- How to stay relevant in the next 50 ears
 - Improved procedures
 - New products
 - Extended audience

ISC achievements

- The ISC Bulletin is the ISC flagship product
 - Together with the ISS Bulletin represents the longest record of global seismicity
- The ISC Bulletin in the past 50 years has become
 - The definitive account of the Earth's seismicity
 - An invaluable source of parametric data and metadata
 - Hypocentre parameters
 - Magnitudes, focal mechanisms
 - Arrival times, amplitudes
 - Event bibliography
- International Station Registry
 - Absolute necessity for data exchange
- Recent ISC products are regarded as indispensable research tools
 - EHB, GT, ISC-GEM

Evolution of ISC Procedures



- The ISC has been a late adopter of technology.
 - This approach was common for 20th century operational organizations.
- Relevance in the 21st century will depend on staying ahead of the curve by facilitating new technology.

Challenges

- While other seismic agencies are moving towards:
 - Real time waveform processing
 - Production of fast, reliable bulletins
 - Automated operations
- The ISC Bulletin is:
 - Based on solely parametric data
 - Produced one event at a time
 - Two+ years behind real time
 - Serves a specialist audience

How to stay relevant in the next 50 years

- Continue to pursue new data sources.
- Rigorously maintain quality
 - The ISC Bulletin should remain the gold standard
- Increase productivity
 - Reduce time lag of the Bulletin to less than a year
- Continuously improve procedures
- Offer new products
- Proactively serve the needs of the core customers
- Reach out for new customers
- Adopt new technologies and standards
 - That line printer won't last for another 50 years...

Procedures

- Integrate automatic and manual bulletins
 - Provide quality control on automatic bulletins
- Process waveforms to pick and measure
 - Later phases
 - Differential times
 - Amplitudes
- Introduce multiple event location techniques
 - Process entire aftershock sequences and event clusters
- Introduce travel-time predictions from 3D velocity models
 - Evaluate the performance on the Ground Truth database
- Promote IASPEI standards

New products...

- ISC Bulletin (1900 – to date)
- IASPEI Reference Event List with waveforms
- Extended bibliography
- Declustered ISC catalogue (1900 – to date)
- Event cluster database
- Infrasound and hydroacoustic events
- Tsunamogenic events
- Anthropogenic events
- Detection/arrival list
- Benchmark data and tests for 3D models
- SQL interface to the ISC database

Target customers

- Seismologists remain the core customers
- Seismic hazard/risk
- Seismic engineering
- Tsunami research
- InSAR
- Hydroacoustic
- Infrasound

Summary

- In the next 50 years there'll be many challenges

