University of BRISTOL

NEXT-DAY CSEP FORECASTS: ESTABLISHING A BENCHMARK

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SCEC

CSEP COLLABORATORY FOR THE STUDY OF EARTHQUAKE PREDICTIBILITY

USGS science for a changing world

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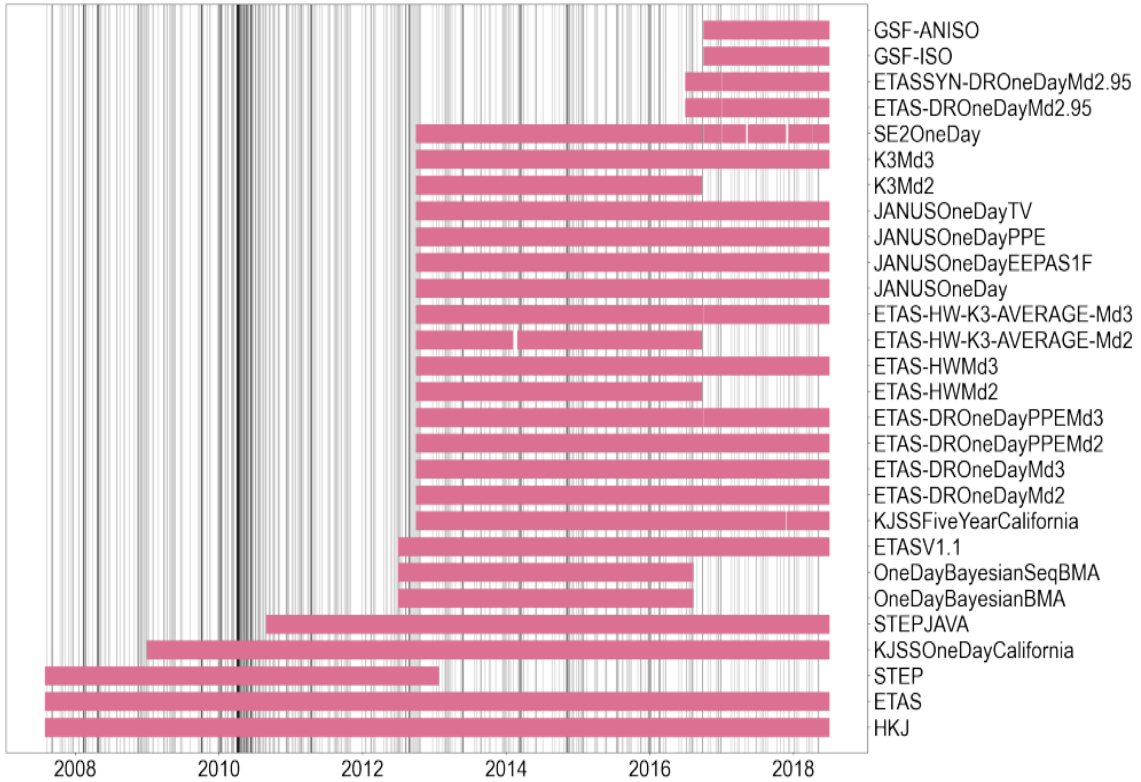
Next-day CSEP forecasting models

- CSEP have collected and operated **27 models** producing daily forecasts for California
- The forecasts are between **August 1, 2007 and August 30, 2018**
- Each forecast starts at midnight and covers **24 hours**
- Only M3.95+ events



Sharing the forecasts

- The forecasts are available as .hdf5 files on the CSEP website
- We aim to establish a **benchmark** to:
  - Have a common point of comparison for **new models**
  - Have a set of known models to **test new metrics**

List of Models

Model name	Starting date	End date	Missing days	Min magnitude	Links
ETAS	01 August 2007	30 August 2018	0	3.95	1. Description 2. Download
STEP	01 August 2007	21 January 2013	0	3.95	1. Description 2. Download
KJSSOneDay	01 January 2009	30 June 2018	0	3.95	1. Description 2. Download
KJSSFiveYears	01 October 2012	30 June 2018	15	4.95	1. Description 2. Download
GSF_ISO	01 October 2016	30 June 2018	1	3.95	1. Description 2. Download
GSF_ANISO	01 October 2016	30 June 2018	1	3.95	1. Description 2. Download

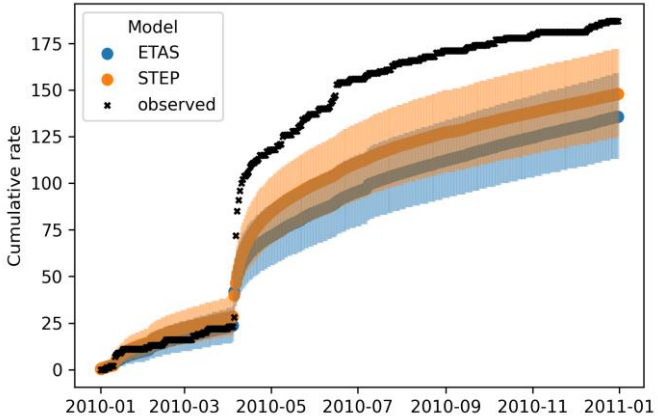
Tutorial & Code

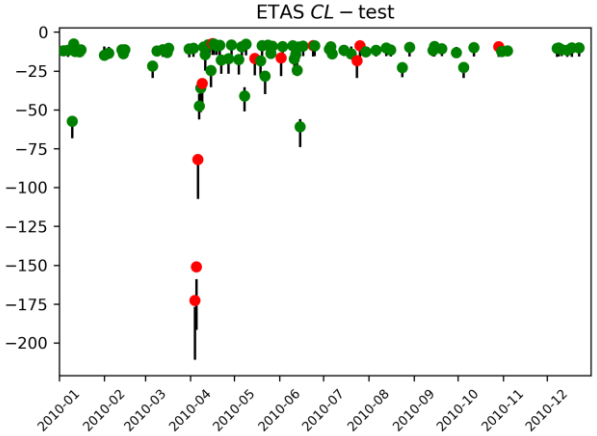
We are providing code to perform different operations and writing a tutorial to guide the user to:

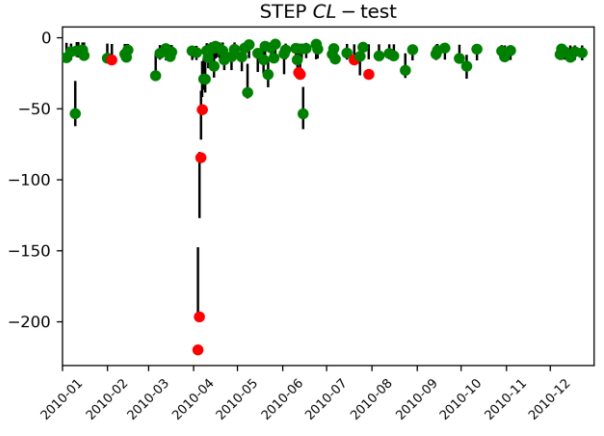
- Evaluate models on a daily basis (consistency and comparison)
- Analyse specific days of interest
- Build and analyse cumulative forecasts on custom time periods
- Comparison with UCERF3-ETAS and potentially any catalogue-based forecasts.

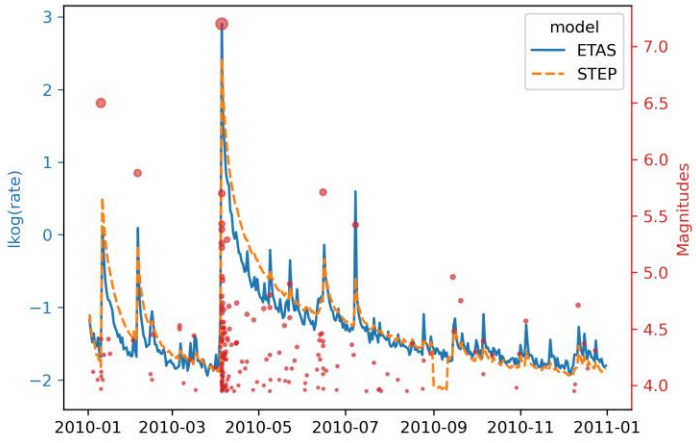
The tutorial focus on the ETAS and STEP model, and we aim to provide a workflow with which models can be evaluated.

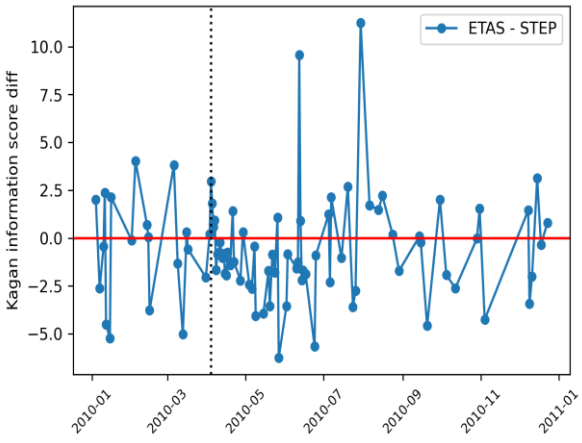
Daily analysis - 2010

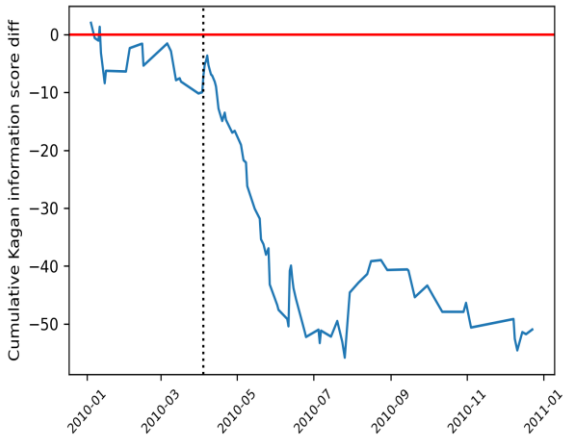




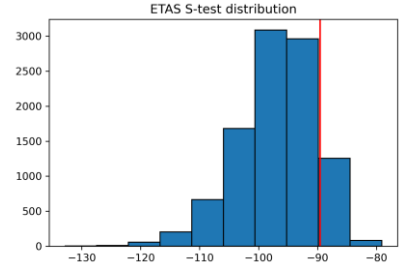


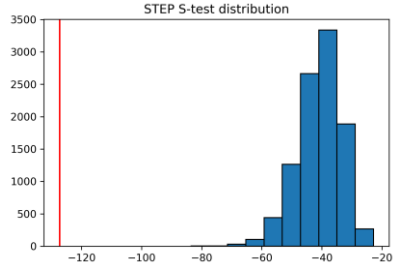


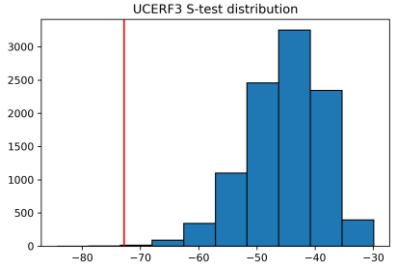


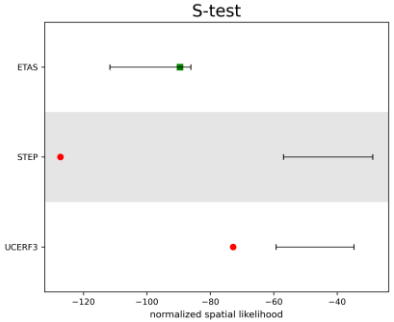


Analyse Specific Days – 5 April 2010







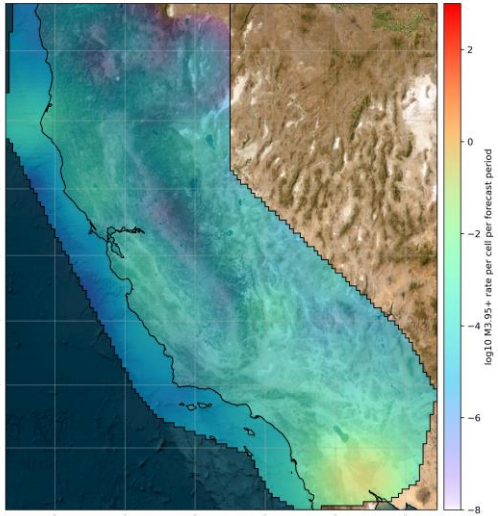


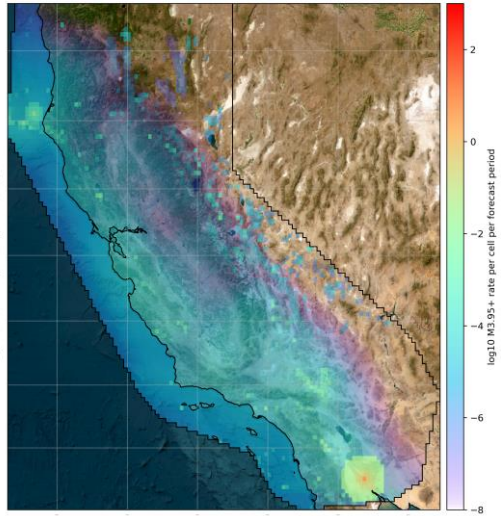
ETAS - 05/04/2010

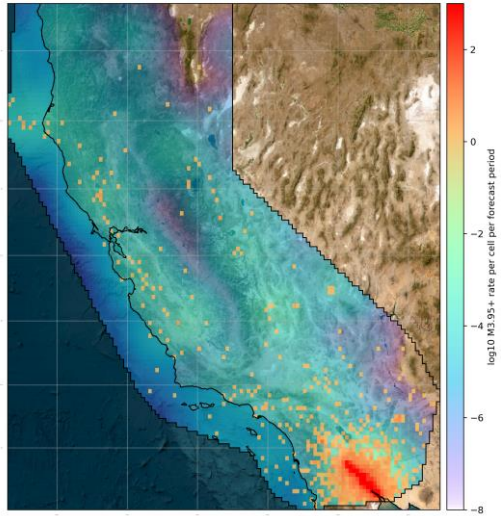
STEP - 05/04/2010

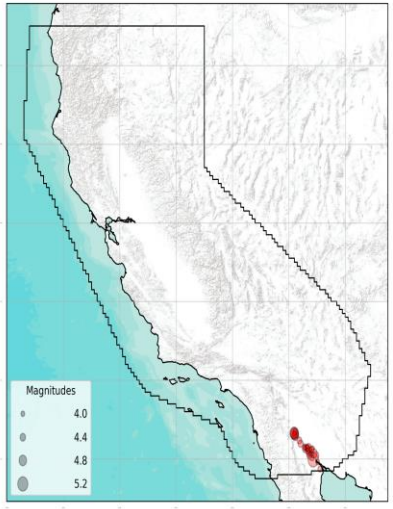
UCERF3 - 05/04/2010

ComCat - 05/04/2010









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THANK YOU

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