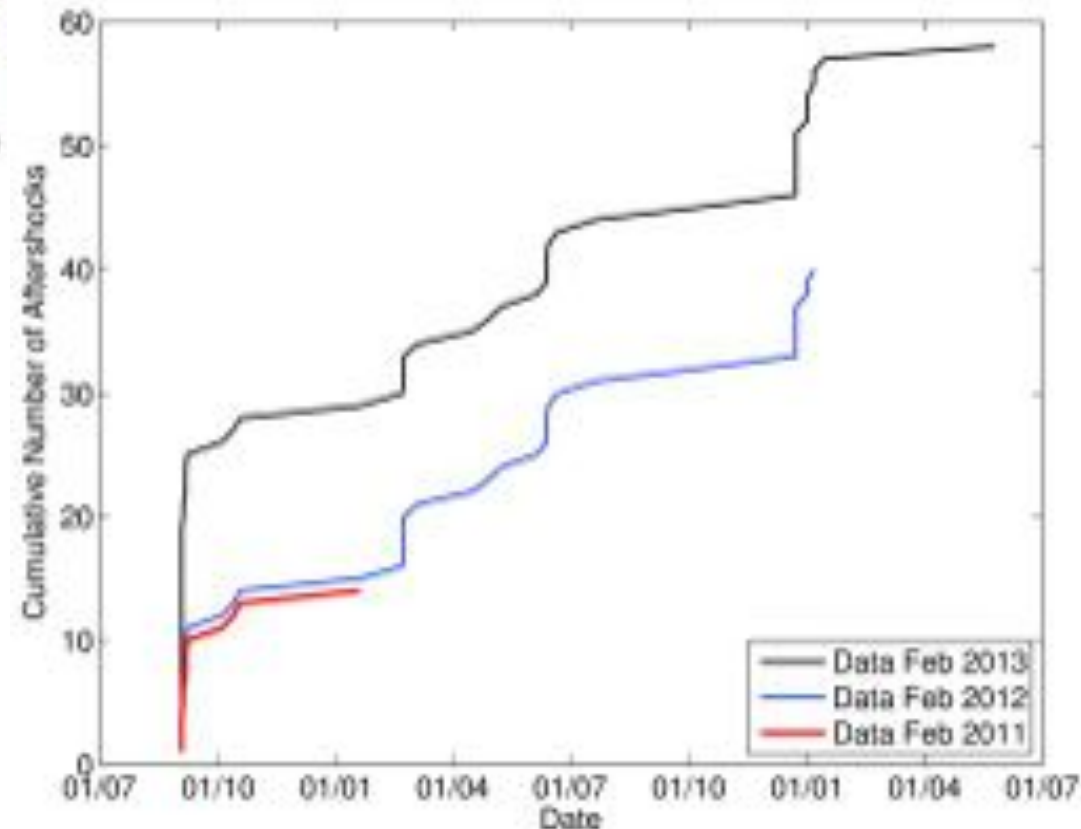


- ## Real-time data vs final data
- Earthquake catalogue data
 - Slip models

Above: Significant changes

- Black is data available 10 days after the event (and 30+)
- Green is 1.5 years later
- $M > 5$ added, removed, moved



Data quality issues in OEF

- The earthquake catalogue available in real-time is of variable and typically poor quality
- The ability of a model to forecast well in a real-time situation is not necessarily the same as its ability to forecast well in CSEP
- How important is this? Should modellers be paying more attention?

Real-time data

Revised catalogue

	STEPC1_pp	STEPC2_pp	C-RS_pp	STEPC1-r	STEPC2_r	C-RS_r
Darfield	Blue	Blue	Blue	Green	Green	Blue
February	Green	Green	Blue	Green	Green	Blue
June	Green	Green	Blue	Red	Green	Blue
December	Blue	Blue	Blue	Red	Red	Green

Blue: *worse* than STEP Green: *equivalent* to STEP Red: *better* than STEP

Slip model availability:

- A continuous evolution for up to a year
- Multiple competing models: people have “favourites”

We are running two independent tests

1) using the catalogue data and slip models available at 10-days post each of the 4 main shocks: this is to understand the forecast model skill in a real-time situation

2) using the current “best” available data and model: this is to understand the forecast model skill in an optimal environment (and hopefully the true skill)

What might be the role of CSEP retrospective experiments?

- Current prospective testing has limited usefulness for informing decision making or OEF in a quantified way
- The information value in any 5-year period is not yet clear – we are still working on it: a little more positive!
- Retrospective testing can:
 - Indicate very poorly formulated models
 - provide confidence in subjective model building
 - Inform model skill over long time periods
- *How much value is there in continued case-study retrospective tests?*

The 2010-2011+ Canterbury Sequence

- **September 2010 Mw7.1:** ~ 40km from Christchurch, sparsely populated region, damage and liquefaction in Christchurch. Very early Saturday morning
- **February 2011 Mw6.2:** Directly under Christchurch. 1pm Tuesday. Significant damage (especially CBD), building collapse, strong liquefaction, >180 deaths
- **June 2011 Mw 6.0:** Directly under Christchurch. Weekday afternoon. Less damage, more strong liquefaction
- **December 2011 Mw 5.9:** slightly east from CBD. Strong liquefaction. Less damage.

