

# Open Source & OasisUI

R Shiny web-application for Oasis LMF

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Navigation menu with buttons for Analysis and Dashboard.

Analyses table

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ID	Name	Portfolio Id	Portfolio Name	Model Id	Model Version	Supplier	Created	Modified	Status Detailed	Status
44	test	24	test	1	PRWind, version 1	OasisLMP	7-05-19 08:08:35	7-05-19 08:08:43	run completed	●
37	test-dynamic-peris	18	Test Demo	1	PRWind, version 1	OasisLMP	3-09-19 14:39:23	4-09-19 07:26:43	run completed	●
35	Test Demo	18	Test Demo	1	PRWind, version 1	OasisLMP	18-05-19 15:42:45	30-05-19 15:00:11	run completed	●
36	test	17	test demo	1	PRWind, version 1	OasisLMP	29-09-19 13:35:35	29-09-19 13:37:33	run completed	●
34	test	35	test	1	PRWind, version 1	OasisLMP	28-05-19 17:55:15	28-05-19 17:55:23	run completed	●

Showing 1 to 5 of 34 entries

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Dashboard of Analyses Outputs Delete Analysis Export to csv

Figure 1: OasisUI

# Goals and Scope of OasisUI

- **Target Users:** Supports multiple concurrent users and is built to typically serve small teams. Target audience includes researchers, government officials, model developers. Intuitive for non-industry-professionals in terms of vocabulary and flow.
- **Designed Features:** Not intended as a full-fledged, all-inclusive off-the-shelf solution. Provisioning of inputs, output configuration and executing various runs of models. Exposure validation, results summary, output visualisation and data export.
- **Intended Usages:** Intended more for exploratory than production usage. Model evaluation and comparison. Scenario and sensitivity runs. Assessment of exposure data.

- Many companies have started to understand benefits of open-source and its cost-saving potential.
- Open data and technologies such as Docker, Kubernetes or R / Shiny together with appealing cloud service offerings make it possible for small / midsize, agile players to compete in different ways and get engaged in fields with less investment and experience.
- Possibilities illustrated e.g. by recent [Fathom paper in Nature](#) making use of Facebook data.

## Why is this a good choice for an open source project?

- Shiny framework as a completely customisable, free and open source reporting tool, exploiting the full power of R, can be the bridge between business reporting and data science.
- Flexible and intuitive for prototyping, good for a product under development.
- It is easy to program, maintain and integrate with other technologies and reporting tools. However, it is not designed to be a BI tool.

# Shiny - Number of Packages

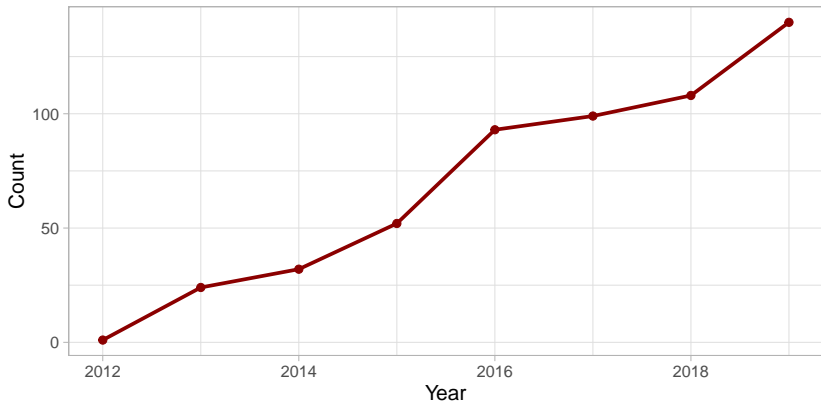


Figure 2: Number of packages with Shiny as a dependence, estimating value for 2019. Based on cran-explorer.

# Shiny - Graph of Dependencies

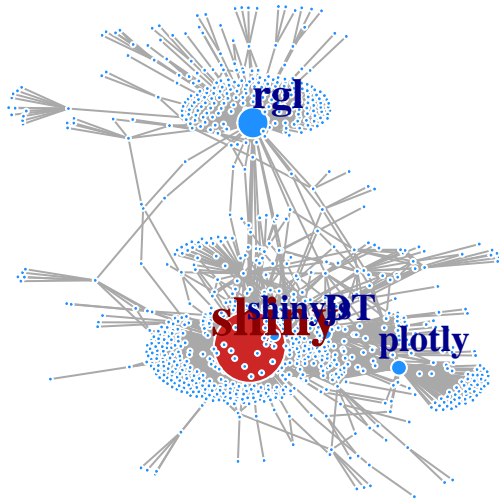


Figure 3: Order 3 graph of packages with Shiny as a dependence. Based on cran-explorer.

# How Wide-spread is Shiny in Insurance?

- Stefan Eppert [Cat Modelling in R and Shiny](#)
- Marc Rierola [RShiny at Qatar Re, Case Study](#)
- Malcolm Haylock [Integration of GEM - Dominican Republic with Oasis Platform and Shiny](#)
- UseR2017 [Large-scale Shiny apps for non-life insurance](#)
- Lombard Odier [Shiny dashboard for managing a portfolio of Cat bonds](#)



- User interfaces (like Shiny) and interactive approaches such as notebooks lower the barriers towards coding and advanced analytics for non-technical users.
- They make it simple to run, modify, check and present data analyses developed in e.g. R, Python or Julia. They further greatly simplify exploratory investigations and improve insights and interpretation of results.
- Languages and tools offer increased integration capabilities, giving access to external libraries for efficient simulation and algorithms, and opening the rich world of interactive visualisation libraries.

# Visualisation Examples

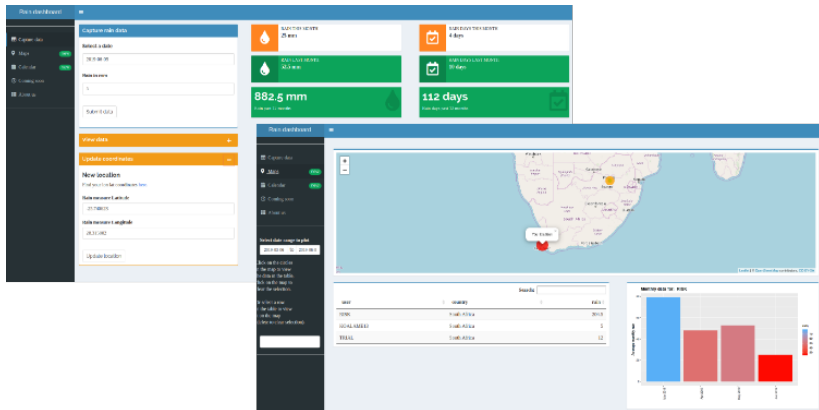


Figure 4: Rain dashboard

# Visualisation Examples

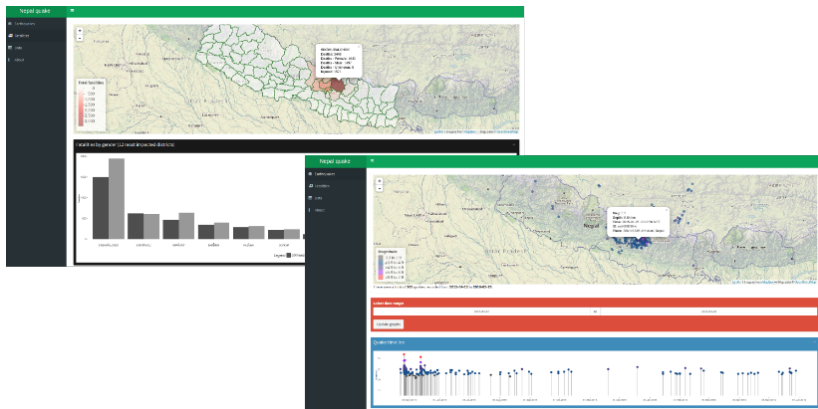


Figure 5: Nepal Earthquakes

# Visualisation Examples

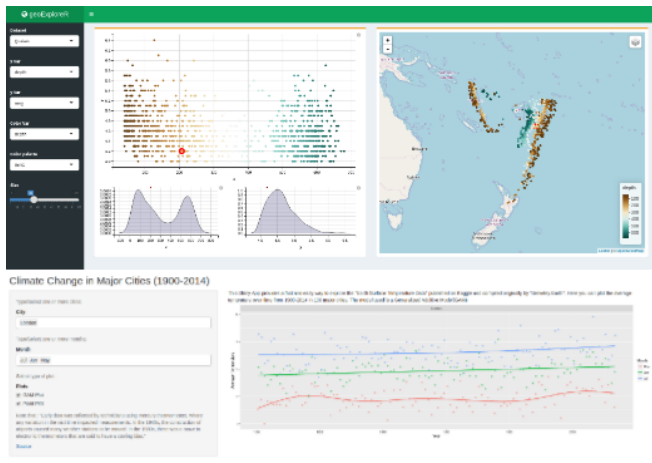


Figure 6: Geoexplorer dashboard Climate change city temperature

# Analytics and Technology Trends in Insurance

The insurance industry and actuaries are investing heavily in modern data science. This concerns know-how, technology, infrastructure, but also mindset.

Following a continuous wave of **big data** and **Spark**, we are now riding the larger wave of **machine learning** and **medium data**.

**Insurance**

**Data**

**Science**

- Innovative approaches
- Lots of **machine learning applications**
- Use of data & open collaboration initiatives

... and of course **R / Shiny** as well.

# Coming up Next - Exposure Validation

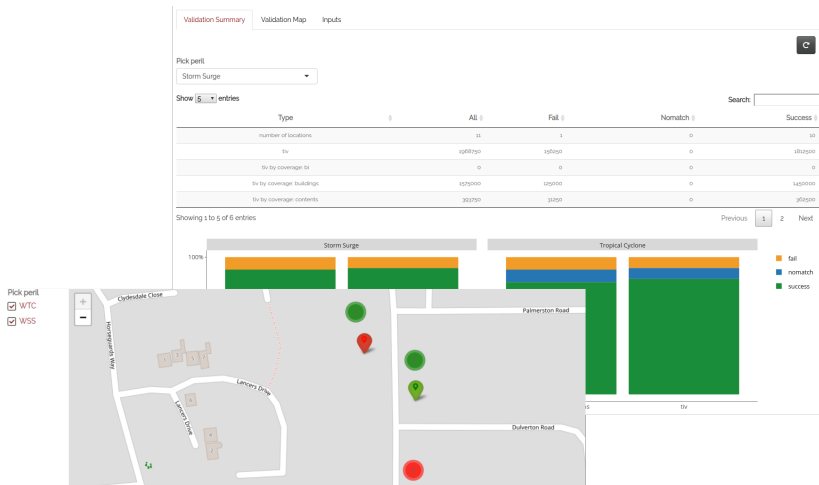


Figure 7: Exposure validation, OasisUI.

# Coming up Next - Hazard Map Overlay

Hazard map provisioned by the model provider, visualised upon model selection.

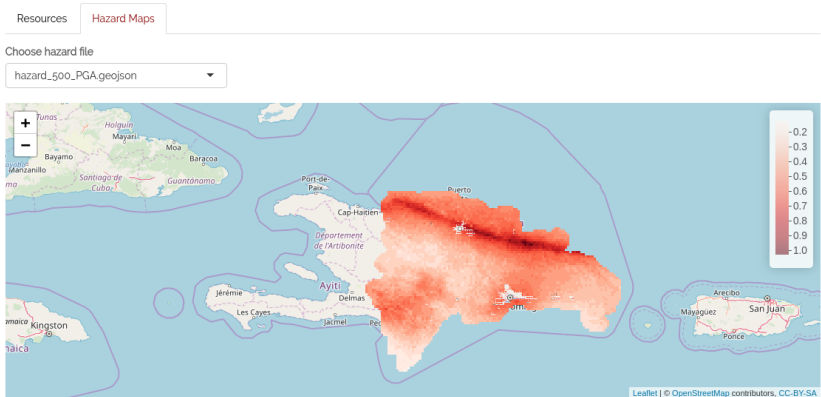


Figure 8: Hazard map, OasisUI.

OasisUI has come a long way forward, but there is more yet to come:

- **Dashboard:** improve reporting of results with a simplified dashboard structure and extended visualisation options.
- **Comparison and sensitivity analyses:** use batch runs to perform sensitivity analysis and integrate analyses comparison in the reporting sections.

**We would like to hear more from the community!**



## Get involved / further reading:

- OasisUI GitHub:  
<https://github.com/OasisLMF/OasisUI>
- Mirai Solutions GitHub:  
<https://github.com/miraisolutions>
- Mirai Solutions website:  
<https://mirai-solutions.ch/>

