Into the future

# Where does your money go?

## Sales and annual fees income

- 40% R&D (coding, testing)
- 40% Support Services (support@tuflow.com, Wiki)
- 20% Admin, licensing and marketing (sales@tuflow.com)

## Training income – break even
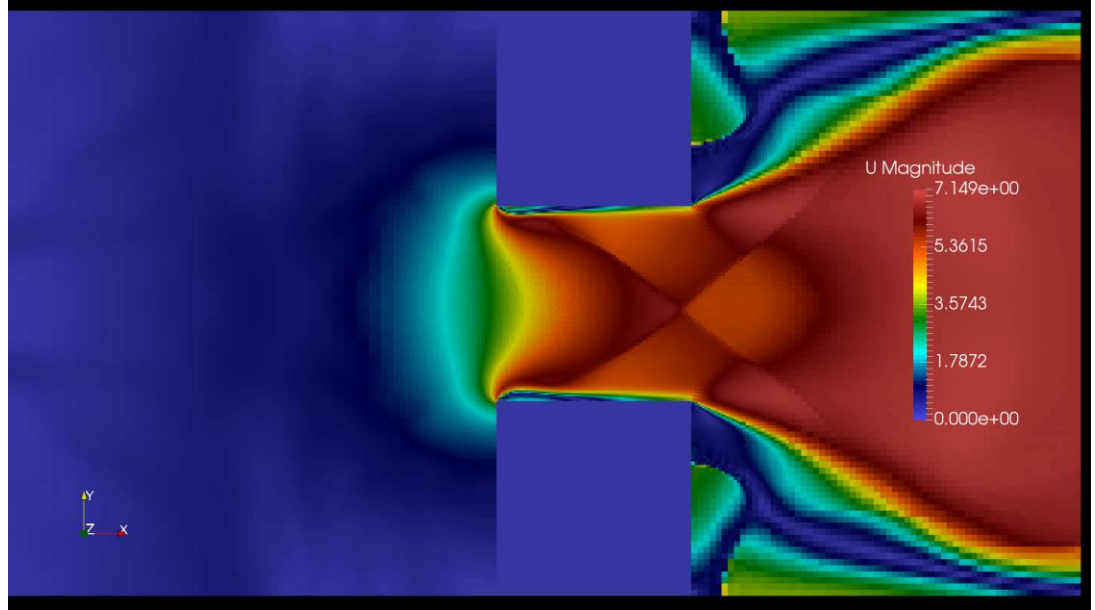
## Software Business Unit since 2016

- Projects don't come first anymore!
- Not just Phil, Sandy and Bill – TUFLOW Team now >10 full-time staff

# HPC QuadTree

## Mesh Refinement

- Reduce sizes of selected cells by factor of two

- Multiple layers of reduction

- 2D hydraulics and preliminary testing completed

- Input and output commenced (Major task)

# One TUFLOW.exe

## Moved TUFLOW FV alongside Classic, HPC and ESTRY

## Greater integration of all engines

- ESTRY linked to all (Classic, HPC and FV)
- More seamless transition between engines
- Shared common functionality, inputs and outputs
- Potential linking of Classic, HPC, FV

1972  1989  1990  2001  2002  2004  2006  2010  2011  2012  2013  2014  2015  2016  2017

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# Recent QGIS Developments

## QGIS

- Ported TUFLOW Plugins to QGIS 3
  - Available now in the plugin repository
- New workflow tools including:
  - Insert TUFLOW attributes to existing GIS layer e.g. 1d_nwk attributes and a council stormwater database
  - Quick TUFLOW layer styling
  - Quick Labelling
  - Australian Rainfall & Runoff 2016 auto storm generation tool (for Australian users)
  - Export plot data to CSV
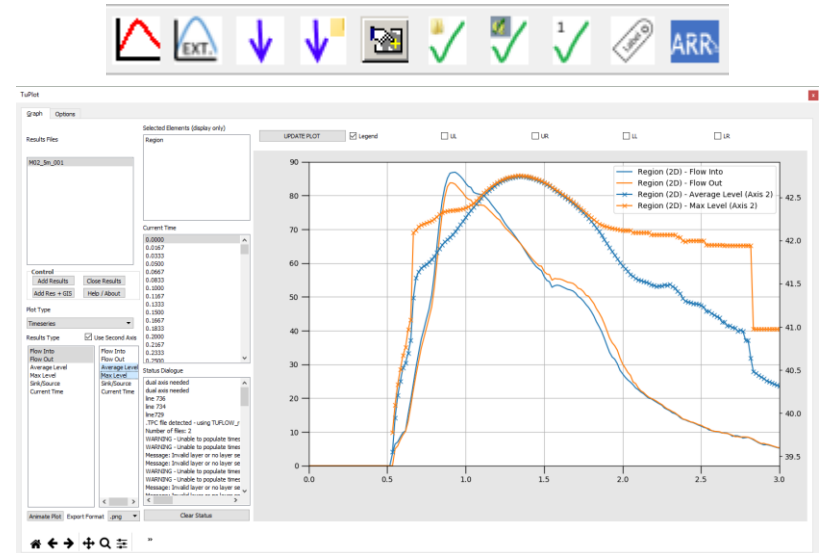
# Sneak Peak into the Future

**ArcGIS, MapInfo and QGIS**

- New tools to help with model building and workflow

**TUPLOT**

- Integration with model building and viewing outputs

  - On the fly 1D cross section editing in QGIS

  - Viewing water level results on cross sections

  - Viewing hydraulic properties using 1d_ta_tables_check.csv

  - Creating 1D open channel ESTRY inputs in QGIS

  - Troubleshooting complex 1D pipe networks
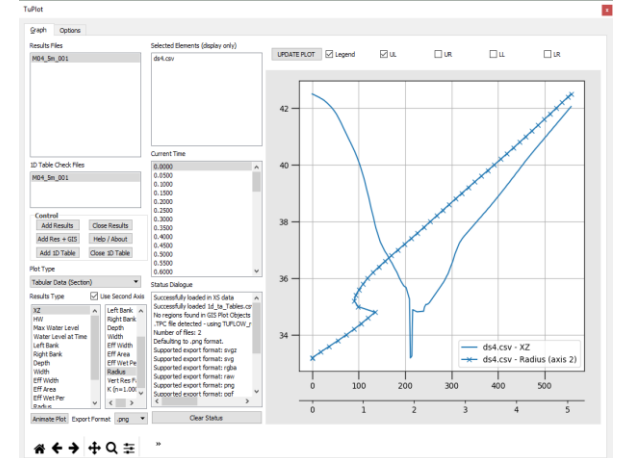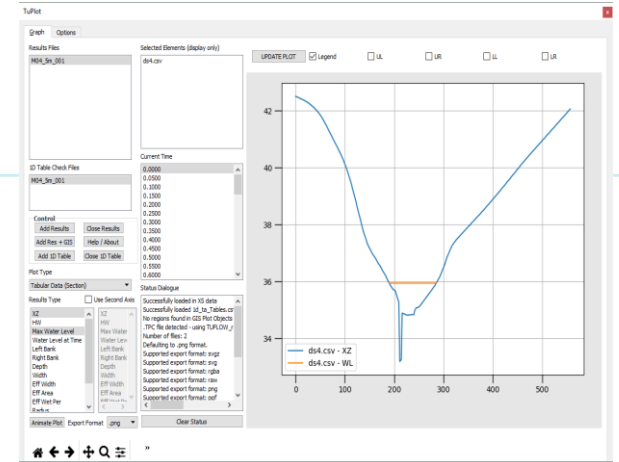
# Crayfish by Lutra Consulting

- **Being ported to QGIS 3**

- **Support for TUFLOW DAT, XMDF, grid and NETCDF outputs**

- **Faster and Files > 2Gb**

- **Data calculator**

- **3D Canvas support**

- **Time series, long-section, cross-section**
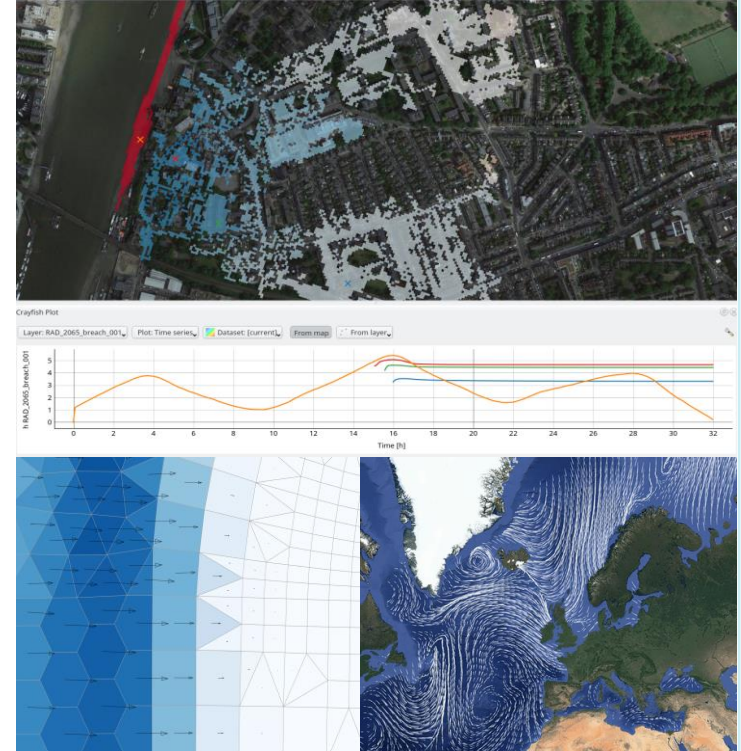
# Flexible Licensing Options

- Perpetual

- Yearly Subscription

- Monthly Rental Service

- Daily – Cloud Simulation Service
  - Ideally suited for short term, bulk simulations

- Hosting Network Licenses on the Cloud

- Enterprise Agreement

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# Flood Modeller

- Linking Flood Modeller and TUFLOW HPC

# Flood Cloud

- Running TUFLOW in Flood Cloud

1972 1989 1990 2001 2002 2004 2006 2010 2011 2012 2013 2014 2015 2016 2017
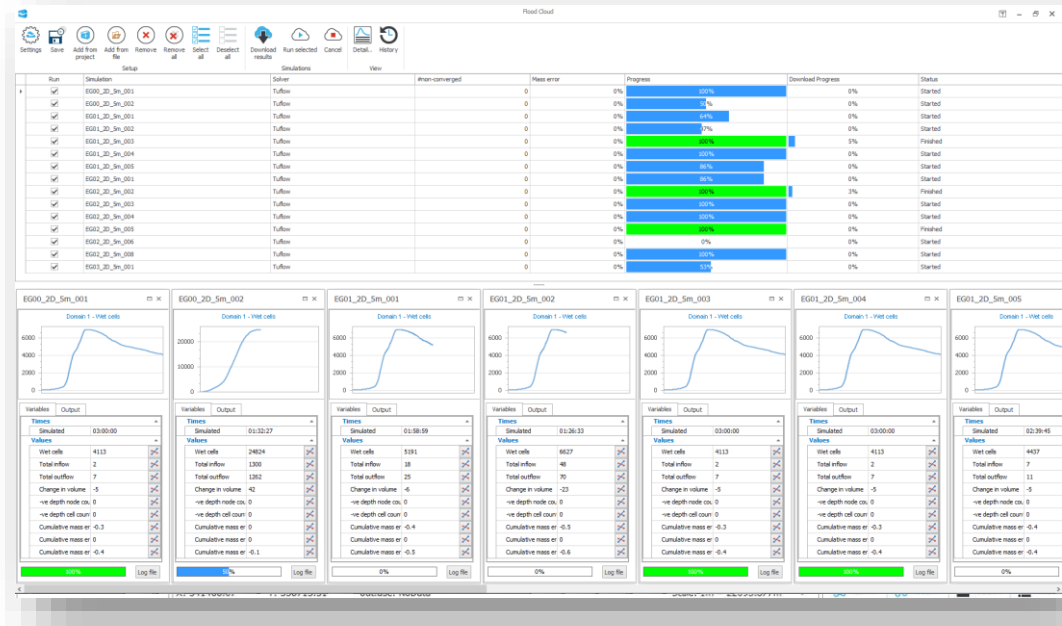
# FloodIntel

- Intuitive: no training required

- Web-based: no license restrictions

- Real-time: integrates multiple data feeds and formats
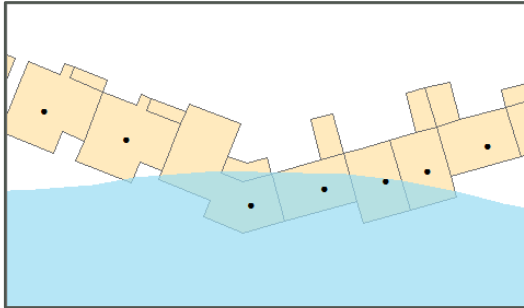
- Customisable: to each floodplain and each user
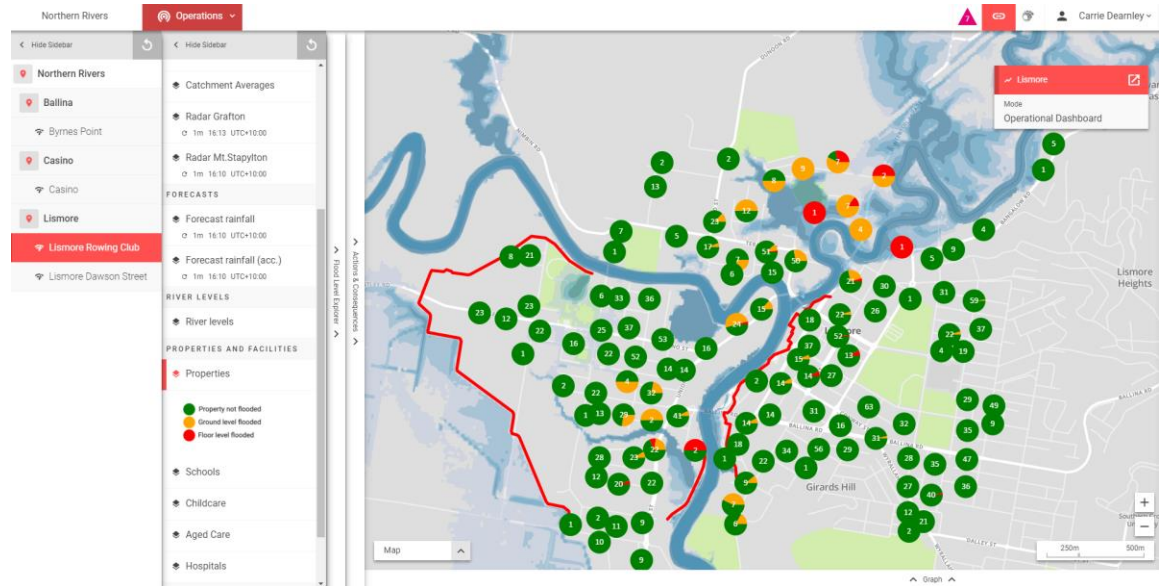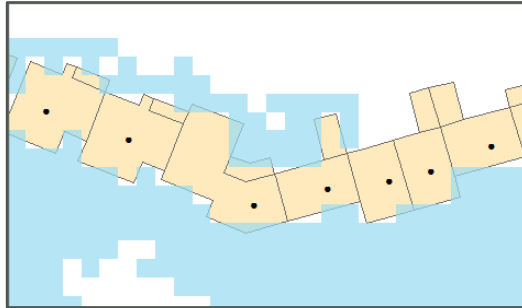
# Properties at Risk

### Fluvial / Coastal Flooding
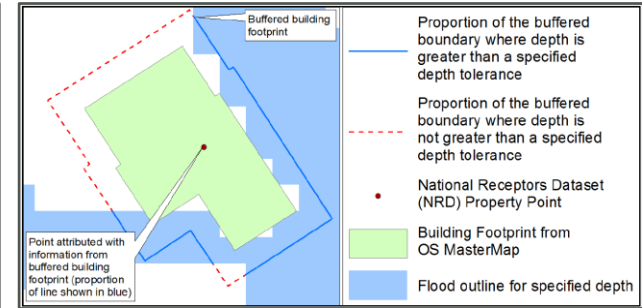Simple in/out of flood extent



### Surface Water Flooding
Typically more disperse and fragmented



### RoFfSW PPD
Basic Principles of Analysis EA, July 2014



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# And…

- Bridge Loss Calculator – Utility

- Flood Damages – Utility

- Debris and blockage modelling (EA/DEFRA guidance SC110005)

- TUFLOW HPC Advection Dispersion

- TUFLOW HPC Turbulence model enhancements
(prandtl, k-omega / k-epsilon)

- And much, much, more
(over one hundred "minor" enhancements on list)

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