

Unlocking the full value of a flood model

Wednesday 18th June



Host:

Andrew McPhail Senior Principal Surface Water Engineer

Jacobs



Presenters



Sophia Buchanan Flood Products Lead - ANZ Jacobs



Will Prentice Director & Principal Engineer URPS – Urban Places, Regional Spaces

Thanks to content contributors:

Calvin Li, Senior Modeller, ETS Water and Environmental Services, Sydney Water
Melissa Daley, Manager Geospatial Intelligence Systems, NSW SES
Joe Clarke, Technical Lead for NaFRA2 / Head of Hydroinformatics, Jacobs UK



Poll: How do you contribute to flood models?



Agenda

- The Value of a Flood Model
- Current Practices in Model Management
- Challenges in Management Methods
- Treating Models as Assets
- Live Demonstration
- Q&A



Poll: What is the cost of the average flood model?



Model Cost ≠ Model Value



The Value of a Flood Model



The Value of a Flood Model



The data-information-knowledge-wisdom hierarchy



The Value of a Flood Model







Current Practices in Model Management



Current Practices in Model Management



- Gather data
- Build a model
- Document version and decisions in excel
- Get model reviewed
- Plot 437,280,347 flood maps in PDF report
- Get report reviewed
- Handover report + model on encrypted hard drive or share site
- Model left to gather dust



Challenges in Management Methods



Challenges in Management Methods



- Lost source data
- Poor knowledge transfer
- Multiple copies & versions
- Time wasted finding models
- Lack of consistency in naming conventions / structure
- Wrong / mismatch results
- Lost models
- Destruction of storage / hard drives
- Expensive model rebuilds





Treating Models as Assets



Treating Models as Assets



Characteristics of the flood models that we create

Physical (made of bits and bytes)

Cost of the model can be measured

Retained to support business decisions

Not intended for sale by a Council, Agency or Organisation

Requires maintenance/upkeep

Use/usability may depreciate over time

Treating Models as Assets



Plenty of other industries are doing this..

Buildings	Software				
Systematic data collection					
Routine updates / calibration					
cremental improvements over time					
gle point of truth / version controlled					
Well documented					
Consistent data structures, naming conventions					
	Systematic data collection Routine updates / calibration Acremental improvements over time gle point of truth / version controlled Well documented tent data structures, naming convention				

Thursday, 19 June 2025

NSW Flood Data Portal

Administered by the Geospatial Intelligence Team

of NSW State Emergency Service







flooddata.nsw.gov.au

For council, consultants and users in floodplain management industry

Become a registered user via the Register Button in top right

- Do not use personal emails only professional domains will be approved access
- All study reports completed since 2017 are publicly accessible
- Owners of datasets assign access for registered users to download datasets (unless made public)
- Datasets are discoverable through SEED portal (https://www.seed.nsw.gov.au/) and data.NSW Portal (data.nsw.gov.au)



Projects and Datasets

	NSW Flood Data Portal		S NSW Flo	od Data Portal	
HOME FLOOD PROJECTS DATASETS	TEMPLATES ORGANISATIONS ABOUT HELP	HOME FLOOD PR(♠ Home / Dataset	DJECTS DATASETS TEMPLATES ORGANISATIONS ABO	UT HELP	
What are Flood Projects?	Add Flood Project	What are Datasets?	Add Flood Project		
Flood Projects are studies and/or plans which have been developed as a part of the Floodplain Risk Management Process, to determine flood affectation	Taree	CO Datasets are the differ components of Flood P reports and spatial dat	nt data rojects, such as Taree asets. 18 datasets found for "Tar	ree" outube outube	GO
and its effects, over a defined study area. Location	Flood Project Concept Design	Location Define search extent	Taree CBD Levee Feasibility Assessment	Report PDFs - all volumes	
Define search extent	Taree CBD Levee Feasibility Assessment Completed Publication date: 18/06/2024 Feasibility assessment of levee to protect Taree CBD, as identified in the Manning River FRMSP.		Sydney Completed Publication date: 18/06/2024	ity Assessent Reports	
Sydney	Flood Project Post event flood behaviour reports Manning River February 1990 Flood Report	Melbourne	aree CBD Levee Feasibility Assessent Rep	orts	
Mebburne	Completed Publication date: 01/05/1990 In February 1990 the Manning River and its tributaries experienced major flooding as a result of heavy falls over t catchment. A flood peak of 4.48m AHD was registered at the	he NSW Department (2		Hydrological, Hydraulic and flood damage model input files	
Mid-Coast Council (19) NSW Department (2)	Flood Project Flood study	Tags Manning River (13)	Completed Publication date: 18/06/2024 Hydraulic Model TUFLOW T ZIP		
208 - Manning (14) 209 - Karuah (7)	Manning Kiver - Flood Study Completed Publication date: 01/11/1991 This flood study of the Lower Manning River was undertaken to determine flood behaviour for the 5%, 2%, 1% and 0.6% carefully of the Lower Manning River was undertaken to determine flood behaviour for the 5%, 2%, 1% and 0.6% carefully of the Lower Manning River was undertaken to determine flood behaviour for the 5%, 2%, 1% and 0.6% carefully of the Lower Manning River was undertaken to determine flood behaviour for the 5%, 2%, 1% and 0.6% carefully of the Lower Manning River was undertaken to determine flood behaviour for the 5%, 2%, 1% and 0.6% carefully of the Lower Manning River was undertaken to determine flood behaviour for the 5%, 2%, 1% and 0.6% carefully of the Lower Manning River was undertaken to determine flood behaviour for the 5%.	Taree (13) Harrington (10)	Taree CBD Levee Feasibility Assessment	Collected Data	
Tags Manning River (11)	Flood Project Flood study	Coopernook (5) Farquhar (5)	Completed Survey Publication date: 18/06/2024 Collected Function		
Taree (9) Harrington (7)	Manning River Flood Study - Review and Update Completed Publication date: 01/04/2016	Farquhar Inlet (5) Feasibility Study (5)	+ ZIP		
Wingham (7)	The Manning River Flood Study has been prepared for Greater Taree City Council (Council) to define the existing fl behaviour in the catchment and establish the basis for	ood Greater Taree (5)	Taree CBD Levee Feasibility Assessment	Hydrological. Hydraulic and flood damage model input files	

Emergency Management Use

NSW Strategic Flood Database

- Data from the portal is processed into the NSW Strategic Flood Database (Govt. use only)
- This database is fundamental for our planning and preparedness processes in emergency response (e.g. Community Emergency Warnings)
- The database includes historic data which is collated by NSW SES at the end of major operational periods



Need Help?



Q 沐 Language

 \sim

Plan and prepare 🗸 During an emergency 🗸 Recovery News and events About us 🗸 Contact Volunteer

Expand all Collapse all

Home > Flood Data Portal registered user help

Flood Data Portal registered user help



The NSW Flood Data Portal [2] aims to improve the sharing of key flood data within government and to other stakeholders so that this information is more broadly available to be considered in decision making.

Data contained in the NSW Flood Data Portal is entered by each Local Council at the completion of floodplain risk management studies undertaken in their area. This data is then made available to government and other stakeholders via the portal.

This Help page aims to provide a resource to assist in using the Flood Data Portal.

Creating a flood project	~
Adding datasets and resources to a flood project	~
Managing flood projects	~
Markdown formatting	~
Frequently asked questions	~
User guides	~

Need some assistance?

Contact the NSW Flood Data Access Team at nswflooddataaccess@ses.nsw.gov.au

Visit the NSW flood data access page for more information.





NSW Flood Data Access Program

England's National Flood Risk Assessment

- The new national flood risk assessment
- Updated national flood mapping
- A scalable cloud computing system that:
 - Makes best use of available Environment Agency and third-party data
 - Closes the gap between the local and national pictures of risk
 - Can continue to be updated and adapted to stay up to date and relevant for years to come
- New national flood modelling





		Cowlinge			Brettenham Device a set for	Codennam	ornei Debach			Black Walks
5. ×		Great Green		Lawshatt Green	Water Run Tye		Ashbocking	$\sim 1 $ $\sim 1 $ $\sim 1 $	Pandlagram	
otville	B	Bradley Codk :	and End Denston Hawked	don Stowis Hill	Park Ringshall	Bell's Cross	Clopton Boute	Bredfield	rendresnam	Sudbourne
nut C		Little	Upper Street		Barking Tye	Bayman		Eyke	Street Chillestord	Sudbo Bea
		Thurlow Green	Fenst	Boxted Sonnippong Alphetom	Breat \$ricett	vlham Barham tone Blakenbam	Witnesham Grundisburgh Hacketr	Bromeswell	Spratt's Butley	
1	+ +	Great Thurlow			Nedging Tve			Bromeswell	Street Butley Low	Orford
knam		Barnardiston	Hundon	Stanstead Bridge Street Lavenham	Simpleston	2m	Tuddenham	Woodbridge	Corner	Orford Reach
ind	Withersfie	eld Great Wratting	Poslingford	Glemsford Downs Brent Ele	igh Chelsworth	Bramford West	St Martin Linte M	andensgrave Sutton Conf	imon	Ceugrare
th			Chilton			Castie	Dearings	Sandy A. T	Boyton	
		Kedington	Cav	wendish Melford Park	Allden Semer Whattield Elmsett	Bramford	Martlesham	Methersgate	Hollesley Feath	
ll Green		Haverhill Calford Green	Clare 🖉 😒	Long Melford Uittle Waldingfield	Lindsey Type		Kesgrave Martlesham	a	Oak Hill	
		Boyton E	End	Poxearth Podbridge	Rose Green Aldham	Burstall	h California Foxhall Heath	Waldringfield Shottishar	n Hollesley	
Castle Camps			Stoke-by-Clare Bolchan	TempleEnd Corner Waldingfield Priory Great	Adham Common Castling's Kersey Hintleshan	n Chantry Stoke				
	Pale Gree	en Ante	Ashen Ovington St Pau		Heath Upland Hadle gh	sham Hackbook (1)	Raceopurse		Street	
tle Biggin	-	Steeple Birdbrook	Belchai Otter	mp Sudbury	Groton Hadleigh Heath	Mare Green	Sainsborobgh Bucklesham	Ramsholt	Alderton	
ommor		Bumpstead	Ridgewell	Belchamp Newton	Polshad Upper-Layham	Blacksmith's Wherstead	Levington Mingaton			
er End		Wesley	End Daker Hill Little Yeldham	Bulmer Middleton Little	Whitestreet Heath Green		Freston Park Nacion Real	Kirton	Bawdsey	
		Dyer's	's End Great Voldham	Sestingthorpe Tye	Shelley Paydon Great	apel	Washingtons			
Hempstead		Craig's End	1	Audley Engl Great Heriny Workhouse	avenheath Mill Street Gifford's	Mary White Horse	woolverstone	St Martin		
		Cornish Robinbood End	Purbley Green	Green Green	Stokelby Martand St Nary	Dentiey Tattingstone	Chelinondiston	Trimley St Mary		
	Tin Gr	nkers Hall End Gain	sford End	Lamarsh Dura	Honey Tye Thorneton Higham		Church End	Walton Feixstowe	+ (
- 197		Little	Delvin Ehd Sible	Cripple Green	Stleet ast Bergholt	Stutton	Harkstead Shotley	Felxstowe	4	
			Hedingham (Great Bures Bures	Nayland St Mary	Stution Park	Shotley Ga	ite		
21 1	1	Finchingfield	Forrey Green	Pebmarsh	Boxted Dedham	Cattawade		darfwich		
End	Green		CONC	Would offer	Little Warkhouse Hornestreet	Manningtree	Farkeston	felixstove		
		Wethersfield	Placimore End		Lamb Corner	Readfield	Wrabness Upper	Beach		
		Bardfield		Halstead Colne Engaine	Foxash Estate		Ramsey Doverdourt			
	Oxen	End	Rotten End Gosfield	White Colne	Great Horkesley	Bradfield Heath	Little Oakley Milde Beach			
t Holder's Green		Chure	rch End	Greenstead Chappel Fordham		Little Street Wix	Green			
allows Green	15-	- particular -	AN31	Barton's Green Swan Street Fordstreet	Bergholt Mile End Fox Street Bromley Cross	Horsley Cross	Great Oakley Bull's Ooze			
	Duck End	d Saling Green	n R 2/11		Crockleford Heath Great Brom	ley Stones	Green			
4	Bran End	Great Saling	Panfield	Aldham Green	Colchester Greenstead	Monkey Green				
	Stebb	Andrews Field	Bocking		Lexden Einstead Gree	e Beau en Raven's Tendring	minorit			
347		Stebbing		Pattiswick Rack Maadow Little Tey Tey	Shrub End Old Heath Frating	g Green	The Made	D		
Church End	Brooken	nd Green Blake	Rayne Braintree Bra	adwell Alzo Coggeshall Green	Cheshurt Field Flaste ad	Weeley The	or pe Green	Jubite Brach		
at Dunmow	Little		Great Notley Galley's Former Pe	erry Green Easthorpe Heckford	oridge Wivenhoe Airestoid	Great Bentley	Thorpe Cross Walton or	i-the-Naze		
	punmow	Bannister Green	Row Cressing	Siboxis Green	Layer de-la-Haye	Aingers Weeley Heath	Pig Street Kirby Cross			
		Causeway End Willows C	Green Sil	Iverand Birch	Fingringhoe Fingringhoe	orrington Green Row Heath	Great Frinton-on-Sea			
Distants	Nort	rth End Hornells Co	Corner utbas visitori	Messing Birdh Gr	een Abberton Wirk	St Osuth Heath Clac	tle (Holland Pits)			
Green			Rank's Green	Riverhall	Pete Tye					
		Ford End Green	Fairstead Faulkhour	me Tiptree	Brightling	gsea	Burrsville			
			Fuller Street	Nivennali Eng	Pedon	Bockin ('s Eli				
n Easter		Howe Street	Gambles Green	Tiptree Heath Tolleshlunt	Great Point	t Clear Cla	icton-on-Sea			
	Ple	esney		Great Braxted	Barrow Hill Cast Merota	Jaywick				
		Great Waltham		Great SalColl-G	Sattings Mersea Flats	Seawick				
ood Easter	0	Broad's Green	Hatteld	N ² V/ickham Tolleshunt	West Mersea					
armbridge End	- 5	Smealy Blasford Hill	Peverel	Little Totham						
1	1	Broomfield	Boréham Mowden Nouns	sley Sreat Purk	To Ilesbury					
	S	5t James		Goldhanger						
1		Sprin	ngfie d	Heybridge Heybridge						
			Orelmer		Bradwell Waterside gradwell					







Sydney WATER

Hawkesbury Nepean Case Study – Model Provenance

SW Engineering Modelling



TUFLOW FV



Receiving waterway

Hawkesbury Nepean Case Study – Model Provenance

Waterway model applications

- · Environmental approvals and negotiations
- Regional, sub-regional and precinct planning
- Research and development

Key benefits

- Security and traceability
- Transparency and flexibility
- Ability to design around models, rather than projects
- Integration with cloud-based services







Live Demonstration





Questions





Thank you.

sophia.buchanan@jacobs.com

william@uprs.com.au



www.floodplatform.com