Environment Agency/Bureau of Meteorology: Working in partnership to deliver system and service improvements

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Emma Ferguson – Environment Agency (EA)
Adrian Wynn – Flood Forecasting Centre (EA/MO FFC)
Introduction

- A shared vision
- A collaborative approach
- FEWS underpins both organisations
- What will be different in the next year
Two national flood organisations

Agency – risk analysis, hydrometry, forecasts, warnings, advice & information, responding, builder and operator of assets

• Bureau - climate, meteorology, all natural hazards, forecasting, warning to responders, advice & information
Saving lives and livelihoods: a shared goal

- User focussed
- Forecast led service providing impact information and describing the confidence
- Delivering a national service
- Increased digital presence
- Ambition to be world class in flood forecasting and flood warning
Future:

HYDROMET SERVICES REVIEW

FFC

BREFINGS, FLOOD GUIDANCE STATEMENT & FLOOD OUTLOOK

REASONABLE WORST CASE

BEST ESTIMATE

HYDROMET DATA & COMMENTARY

OPERATIONAL ACTIVITY

LOCAL CENTRES

COASTAL/CATCHMENT SCALE MODELING

FLOOD WARNINGS / ALERTS

RIVER

IMPACT

RAINFALL

WAVE

SURGE

WIND

GUIDANCE UNIT

FORECAST MODELS

Environment Agency

FLOOD FORECASTING CENTRE

Australian Government Bureau of Meteorology
System and services

BoM - Where we are now vs. future ambition

Now
• One National Forecasting System
• Primarily text based products
• Developing product generation capability
• Limited impact based services

Future
• Totally seamless national operations
• Forecasts better linked to impacts
• Products in a range of formats
• Agile product generation capability
System and services
EA - Where we are now vs. future ambition

Now
- **Eight** legacy instances regional forecasting systems
- **Aging** infrastructure
- **Out of date** software
- **Not able to easily make necessary changes / improvements**
- System is **holding us back** to make our service more interoperable and efficient

Future
- **One** interoperable, efficient forecasting system/service for England
- **Scalable** infrastructure to meet today’s & future demands
- Being able **respond faster** to user requirements and make service improvements
Memorandum of Understanding
Journey from 2011 to 2018

Creating a great place for living

Environment Agency

FLOOD FORECASTING CENTRE

Australian Government
Bureau of Meteorology
Strategic Plan

Service development
• operational standards, service process, research and development, learning and operational response

Customer and partner engagement
• warning and informing services, infrastructure operators, communication channels and embedding effective actions

Technology and innovation
• flood monitoring, forecasting (FEWS) and warning systems development, maintenance and performance

Developing our people
• Skills, competency, accreditation
<table>
<thead>
<tr>
<th>Topic</th>
<th>Outcome</th>
<th>Success Measures</th>
<th>Commentary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flood Forecasting and System Development</td>
<td>Reduce risk to FFFS-implementation in EA</td>
<td>HfES lessons identified and implemented appropriately by FFFS</td>
<td>Relationship: between teams well-established. Regular calls. Next: Planning BoM/Config specialist to join FFFS team for a 'sprint'. Discussions on verification methods and standards. Sharing on catchment delineation.</td>
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<tr>
<td>Ian Clayton</td>
<td>To shape future system-enhancements to FFFS and HfES and the products they deliver</td>
<td>Risk to implementation of FFFS is reduced</td>
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<tr>
<td>Chris Leahy</td>
<td>Increased resilience in service delivery through an interoperable design</td>
<td>Collaboration on system and service-enhancements identified</td>
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<td>Flood Warning and Informing</td>
<td>Shaping the Bureau-Web Refresh for flood warning products</td>
<td>Flood-Digital Strategy and subsequent business base shared and key learnings help shape the Bureau’s Refresh project for flood warning products and exploiting social media.</td>
<td>Relationship: established. There has been some change in personnel at the Bureau following the recent restructure. Both teams have widened the project scope from a flood focus to take wider hazards into consideration. Alex Cornish visited EA offices and spent time with the digital team and discussed Google Alerts. Next: Team’s store engage and share new goals. Sharing experiences of adopting Common Alerting Protocol.</td>
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<td>Leads:</td>
<td>Shaped learning on methods to visualise flood warnings</td>
<td>Environment Agency ‘Flood Forecast: Online’ online beta service benefits from Bureau’s experience.</td>
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<tr>
<td>Frazer Rhodes</td>
<td>Shaped learning on the use of social media</td>
<td>Web Refresh reflects learnings from EA</td>
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<td>Alex Cornish</td>
<td>More effective partnership working and operational outcomes</td>
<td>Collaboration on digital solutions identified and collective research/user needs are pooled</td>
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Collaboration and tangible outcomes

Site visits

• Look for opportunity for site visits and face to face meetings
• EA – two visits to BoM
• BoM – multiple visits to EA
• BoM in EA next week
• BoM configuration expert to come to EA for 5 days
• Outcome – build relationships and augment technical development/learning
Collaboration and tangible outcomes

Ensembles/Probabilistic Forecasting

- Key area of future functionality and service improvement for both organisations
- Sharing strategies and learning
- BoM sharing trial catchment findings with EA
- Outcome – develop functionality and service collaboratively using FEWS
Collaboration and tangible outcomes

EA Future Flood Forecasting System (FFFS) Day 1

• BoM are utilising functionality that EA require for FFFS
• WaterCoach – training and exercising
• Modifiers
• Open Archive
• Event verification tool
• Outcome – informed EA procurement of FFFS
• BoM – EA informing Impact forecasting
Collaboration and tangible outcomes

Performance Standards and Modelling

- Sharing of each others current model performance standards
- Assessment of model performance against the standards in FEWS
- Calibration and model development practices
- Sharing of experiences in continuous and gridded models in FEWS
Collaboration and tangible outcomes

Only in year 2 of 5 year MoU

- We’re on a journey
- FFFS will be nearing go-live into service in a years time
- BoM will be further into a maturing system
- Further sharing will happen
- Watch this space for further updates
Thank you and questions

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