

TRAVEL REPORT FORM

출장보고서

결 재	선임연구 원	팀장	부서장	원장
	07/31	07/31	07/31	07/31
협 조	이승수	조재필	김형진	정홍상

I. Reporter 보고자

Department 소속	Position 직위(직급)	Name 성명	Travel Date 날짜	Note 비고
응요사업본부	선임연구원	이승수	7/24-28(4박5일)	

II. Major Activities 주요업무 수행내용

1. Main Contents and Activities 주요내용 및 활동

WMO에서 수행하고 있는 Coastal Inundation Forecasting Demonstration Project(CIFDP)-Fiji와 관련하여 수리수문파트 전문가로 회의에 참여하여 다음의 주제와 관련한 회의를 수행함.

- REVIEW OF OUTCOMES OF PHASE 2 PLANNING MEETING
- REVIEW OF PROGRESS ON CIFDP-F PHASE 2 IMPLEMENTATION
- DISCUSSION ON END USER PERSPECTIVES/REQUIREMENTS (discussion moderated by Val Swail)
- NEXT STEPS ON TECHNICAL ASPECTS OF CIFDP-F PHASE 2 IMPLEMENTATION
- LINKS WITH RELATED PROGRAMMES
- TRAINING REQUIREMENTS
- PROPOSED END-TO-END FORECAST SIMULATION EXERCISE
- UPDATE SUB-PROJECT PLAN FOR CIFDP-F
- PROJECT MANAGEMENT

2. Relevance to APEC Climate Center's Activities 결론 및 소감

- 본 출장은 WMO가 KMA에 요청한 수리수문 전문가 추천에 의해 참석하게 되었으며 최초 전달 받은 사항은 CIFDP-F 프로젝트에서 자문역할만 수행하는 것이었음. 그러나 실제 3박 4일간의 회의에서는 프로젝트 설계에 참여 하였으며 Phase 3 (올해는 Phase 2)에는 river flooding 파트 사업에 APCC가 참여 할 수 있는 발판을 마련하였음. 따라서 내년 공식 회의 (매년 1회식 업무 보고 및 향후 계획 수립을 위한 개최 함) 이전에 APCC를 포함한 수리수문 파트 전문가들이 참여하여 본격적인 사업 설계를 할 것으로 예상됨. 추가적으로 CIFDP는 단발성 프로젝트가 아니므로 사업에 참여하게 되면 지속적인 참여가 가능할 것으로 판단되며 국제적으로 APCC를 홍보하는데도 많은 도움이 될 것으로 판단됨.

III. References 참고사항

(with attachment of any information or report in case of attendance of conferences, workshops and meetings) 학술대회, 워크숍, 회의 등 참석 시 관련 정보 및 문서 첨부

1. Presented and Collected Materials 주요 수집자료

2. Suggestions and Remarks 건의사항

ACTION ITEMS FROM CIFDP FIJI WORKSHOP (Nadi, Fiji), JULY 25 -27 2017

<u>Item</u>	<u>Summary</u>	<u>Action/Recommendations</u>	<u>Responsible</u>	<u>End Date</u>
Opening / Adoption of Agenda /Organisation of Meeting	The Workshop was opened with a formal welcome by the host, the Director of the FMS. The Agenda was adopted, and logistics for the meeting were agreed.			
Review of CIFDP-F Meeting in August 2016	A review of the overall objective of the sub-project was provided, making it clear that the intent is to project an operational forecast system for wave (swell driven) inundation on the south coast of Viti Levu, and tropical cyclone episodic events for storm surge and river flooding. Overall responsibility designing the operational forecast system, is with SPC, with support from FMS and WMO, with the aim to complete the project by mid 2019, supported by funding from KMA. A summary of decisions and actions from the August 2016 Meeting was provided.			
Review of Progress – Activities of Fiji NCT	FMS (Kumar) noted that they haven't held the NCT meeting yet as they are waiting for further progress in the CIFDP before reporting to the NCT.			

Review of Progress – Wave Model Implementation	SPC (Kruger) noted progress since August 2016 - particularly related to the signing of the Letter of Agreement with WMO, enabling SPC to carry out the project using KMA funds (approx \$300K for 11 months, April 2017 to February 2018). A numerical modeller will be appointed by SPC in August 2017 to carry out the work, since the previous modeller has left for another position. SPC highlighted that communication plays a significant role in the CIFDP-F. The User Requirement Plan stipulates that the SPC and FMS need to communicate clearly between them, so that the feedback 'from and to' forecasters is known. This was the basis for the first meeting in May 2017, facilitated by SPC to understand better the requirements from FMS and users. The 'User Story' was devised, to show 'who' the system is for, 'what' is wanted, and 'why' through articulating the value/benefit of the system. 9 participants wrote 52 stories in 1.5 hours. SPC took the overall user stories and themes, to identify the tasks required to build the appropriate system design. SPC intend to meet with FMS regularly to maintain communications, to ensure the end-product meets the needs of FMS. Inundation on the coral coast is often driven by swell driven waves from the Southern Ocean. There is a long lead-up to this event (4-7 days), allowing time to forecast (across 7 days). Swell waves hit the reef,, creating the infragravity waves that hit the coast, causing extensive impact and inundation. SPC explained the steps involved in modelling the wave			
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	inundation, and as well displayed some preliminary model products that can be viewed online. Next steps are to finalise the Maui Bay forecast including the storm surge component to the water level and improve the bathymetry and topography data. 3 more representative sites still need selection. Purchase and collection of baseline data is also required. Ultimately, the monitoring system needs to be validated to tune the forecast, in 4 places as part of the demonstration project. The 4 sites need to be selected appropriately. The wave model on the coral coast (southern coast of Viti Levu) could be used as a boundary condition for hydrodynamic modelling of the Rewa and Sigatoka River basins along this coast. Unfortunately it wouldn't be immediately useful for the Nadi River basin (on the northwestern coast of Viti Levu). February 2018 is thought to be the hard deadline for the end of contract at SPC.	SPC are committed to finalising the wave modelling by the end of LoA contract, which is thought to be February 2018. WMO to check the final date for deliverables from SPC, based on date of signature of contract versus receipt of funds.	SPC WMO	Feb 2018 asap
Review of Progress – Wave Buoy Deployment, Bathymetry, DE Databases, Training on Wave Forecast System	There was a wave buoy available at USP, not being used, however it needed maintenance. Currently SPC technicians are testing to see if the wave buoy can be fixed to be deployed. An alternative solar powered wave buoy 'spotter system' may be used if the USP one cannot be. Other options may include the Scripps GPS buoy under development. Regarding the bathymetry data, there is progress to derive	Request to Kevin Horsburgh to support funding for tide gauge instrumentation for Maui Bay, and other tidal gauges and relevant equipment including additional wave buoys.	CIFDP Co-Chair and WMO.	Aug 2017

	satellite bathymetry for the coral coast. SPC are also exploring co-financing so that data can be used for hydrographic charting purpose. SPC are proposing to collect high resolution topography through drone survey. SPC produces tide calendars from available tidal gauges, but there are none on the Coral Coast. There will be a replacement tide gauge set up in Maui Bay, however, in the interim, the Coral Coast predictive tide is fairly constant. Fiji only has 3 tide stations at present. Only one tide station (Lautoka) is sufficient for climatology studies. The other 2 tide gauges in Fiji are not stable. Kevin Horsburgh (UK) has been asking for ideas regarding equipment, that he may be able to fund. The question was asked by FMS to SPC - does the model consider the sea level rise on top of the real time data? SPC notes that this has not been included yet by SPC, but could be easily incorporated into the model, using tools and data from the COSPPAC Project. PSG recommends that SPC should figure out what is needed and engage the PSG when and as needed. SPC would like a series of products, to assist with validation etc, and which helps choose the best way forward. It is easier to obtain things on a test basis to start with, so this should be feasible. BOM (Entel) noted that they have some expertise, that can	SPC to let the PSG know what sources of data are required for testing, and when needed. SPC to approach the sources and ask WMO and/or PSG if assistance/formal request is needed.	SPC	Ongoing
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	contribute to assisting SPC with data.			
Discussion on End User Perspectives	It was reiterated that the end-users are institutional (eg Disaster Management groups) rather than the general public. Recommendation that the User Story process is also carried out at the next NCT meeting. FMS will include extra relevant representatives in the NCT due to the restructuring of the Government Ministries.	FMS to ensure that the 'User Story' process is carried out within the NCT at the next meeting.	FMS	Next NCT Meeting.
Next Steps, Technical Aspects – Tidal Model Implementation	The group agreed with the process already outlined by SPC. SPC noted that most of the global tidal products are open and free, so there shouldn't be any issue to obtain any extra tidal data. If there are problems, the PSG can facilitate data access if needed. Mikhail Entel showed that a BoM evaluation of the global tidal model for the Fiji area was showing very encouraging results.	SPC to ask the PSG for any assistance/formal request if further data is required that SPC cannot source.	SPC	Ongoing
Next Steps, Technical Aspects – Storm Surge Model Implementation	Storm surge may only be an issue for the NW coast, and maybe NE coast. Storm surge forecast will be for episodic event forecasts, not 24/7 as for waves, and maybe 1-2 per year. Swail summarised the Storm Surge Strawman developed following the previous meeting, and the comments from the PSG and associated experts. He noted that FMS had continued to express interest in running an operational storm surge model, but noted that it was possible to switch to a lookup	There was agreement for the CIFDP-F to use the JMA Storm Surge model. SPC requested for JMA to provide the model to SPC as soon as possible so that SPC can start familiarising themselves with it. JMA agreed to share the model with SPC as an intergovernmental organisation.	JMA to provide SPC with the Storm Surge model.	August 2017

	table approach at a later stage using the implemented model if the operational requirements became too cumbersome. JMA (Kohno) introduced the JMA Storm Surge Model, developed at the Met Research Institute of JMA. It doesn't require much computer resources (eg. 15 minutes for a 48 hour forecast). Calculates storm surges considering 2 major factors: inverse barometric effect and wind setup. Other influences such as tides and wave setup which also affect total water level are not considered, but wave setup can be added as a fixed value, to be determined; tide can also be included in the JMA model. JMA (funded by JICA) have conducted training of 2 FMS staff at JMA in 2016, to learn the basics of marine meteorology. Further training by JMA (funded by JICA) is coming up at FMS in Nadi, in August 2017. SPC requests an invitation from JMA, for SPC to participate in August 2017 training at FMS in Nadi, given that SPC is supporting FMS in the storm surge modelling. SPC has also run a series of training workshops via the COSPPAC project. On recommendation from the PSG and with agreement by FMS, the decision was taken that the JMA storm surge model was the best approach for the CIFDP-Fiji, and will be used to progress and finalise the CIFDP-F. Implementation, testing and training to be completed within 8 months from the start.	Based on SPC receiving a new contract, SPC to begin implementation of the JMA storm surge model for the existing Fiji model domain. Investigate the effort, and cost in run time, to extend the model domain to include all the Fiji islands. Request from SPC for JMA to include SPC in the August 2017 storm surge training at FMS in Nadi, given that SPC is directly supporting FMS.	SPC/JMA JMA FMS will discuss with JMA through the Fiji/Japanese bilateral and arrange the invitation for SPC to attend JMA training.	April 2018 or earlier August 2017 July 2017
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	It wasn't clear to SPC, where the waves setup input was expected to come from, for input to the storm surge modeling. JMA responded that the wave data should be calibrated before it is used in the storm surge, e.g. as a fixed value to be included in the total water level. FMS noted clearly, that they and the end-user (beneficiary) don't want to know the source of the inundation - they just want to know how much area will be flooded during early warning notices. This needs to be kept in my mind by all the people working on system design from both coastal and river components.			
Next Steps, Technical Aspects – River Model Implementation	NIWA (Smart) summarised the known flood characteristics of the Nadi floodplain and Nadi River. The 2012 flood was significant and used to model the 100-year flood inundation, however the model takes about 6 days to run, so it can't be used for forecasting. Hydrometric data in Fiji is available to support forecasting. An example of the current situation in Fiji was given regarding flooding in the Raki Raki catchment on Jan 13 2017, issued at 1pm gives level of river at Raki Raki station and also gives that it was .27m ABOVE the trigger level. This is a warning for a potential flood. It also contains tidal information. Level at Raki Raki was at 12.30pm, and the warning was issued at 1pm- half hour lag, but by then, this peak may already be inundating areas that need the warning. Lead time is too short.	Establish a hydrology Task Team to gather and assess the detailed data knowledge available to FMS related to Nadi Basin, with a view to deciding on the hydrological work possible in the timeframe of the CIFDP-F project, with an end point in April 2018. Determine the lead time that FMS needs to warn, for evacuating the Nadi Basin.	CIFDP-F CHy Experts, FMS and WMO NCT and FMS	April 2018 asap

	No operational catchment models are in place in Fiji. Fiji needs enhanced hydrological modelling upon which to base warnings that are not feasible in the timeframe of CIFDP-F. Need to discuss how the CIFDP-F can be complemented with further activities and resources, probably in future, in order to meet the needs of the users. Minimum system requirements: sea conditions to be integrated; rainfall forecast to be incorporated; system to be robust; system to still operate in absence of critical data inputs; and system to supply timely warnings for institutional agencies responsible and media outlets to warn end users such as villages using level-based trigger alarms. The warning dissemination mechanism is documented in the User Requirements Plan. Current Fiji flood forecasting system has 3 trigger levels, which are evaluated and when necessary, for community warnings. CIFDP-F needs to think of ways to implement the system to achieve timely warnings, integrating with the present system, and must consider changing morphology in the river (natural or human induced). The river strawman that has been developed to consider solutions, termed CIASS - Coastal Indication Alert Support	<u>Recommendation: FMS long-term goal is to operate hydrological flood forecasting models which requires certain data that is not currently available. In the interim under the CIFDP timeframe, a decision tree would be feasible and the hydrological task team will be able to also map what is needed to reach the longer-term goal.</u>		
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	System - is a concept based on the system of trigger levels, behind which is a decision tree that can be based on a variety of inputs ranging from complex hydrodynamic models to expert opinion based on local knowledge. The coastal community alert can be as simple as: yellow (BE AWARE), amber (BE PREPARED), red (BE GONE). Strengthening the hydrometric aspect of the CIFDP project is absolutely necessary to do hydrodynamic and hydrological modelling. Fiji needs a range of discharge data, particularly for extreme floods, but they are generally not produced. CIFDP-F recognizes that this basic building block doesn't exist, and Fiji may want to consider what other initiatives can strengthen its hydrometric monitoring. As well, consideration needs to be given to collecting river cross-sectional data and basin bathymetric data (DEM). Do we need models to decide the trigger levels? Until it is possible to make a suitable model, it is likely better to use local knowledge of flooding. Given the timeframe of the project, to go live by 2019, and that we don't have the data to input to models, then for now, we need to look at what we can do with what data we have. Nadi River was selected as the priority basin given the time constraints and data availability. Rainfall records exist for the Nadi airport, since 1942. Nadi River also has records since 1977 (although not perfect) river record levels compared to			
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	other rivers. The data are not perfect, and uncertainty will be taken into account during the process. Modelling systems based on imperfect data can be dangerous when it comes to issuing flood warnings. Flash Flood Guidance System (FFGS) could make use of rainfall data, radar and satellite imagery (available in Fiji) to estimate sub-basin rainfall over a various time periods such as 24 hours. FFGS has been working with the SWFDP wherever possible to assist with providing the system with 1 to 6 hour forecasted rainfall. Nowcasting is also important and can be based on radar and satellite data - this can also be used to improve forecasting in Fiji. FFGS doesn't yet take into account the coastal/ocean boundary input to flooding - which will add more complexity. FFGS typically forecasts out to 6 hours, due to the complexity of accurately forecasting rainfall (eg. poorer performance for rainfall generated by thunderstorms). Key question for Nadi basin - how much lead time is needed to effect emergency response measures in the Nadi basin (eg, relocate people, remove equipment)? (noting 60K people in the Nadi basin). Fiji needs to provide this information to the CIFDP-F. It is up to FMS to decide what forecast approach they want, and what data they need from the project. Fiji has been experiencing some significant events in the last ten years, which have not been captured well.			
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	It was felt that establishing a Hydrology Task Team (hydrological experts, WMO and FMS) is the best way forward. It would identify the data availability (summarised by FMS), and then assess the feasibility of the hydrological approaches that could be used, with an assessment being completed by April 2018, so that the hydrological work can be completed by end of CIFDP-F in 2019. It was suggested that the Task Team may benefit from a face to face meeting, possibly to sort out the strawman on the way forward. Resourcing the team and its activities needs consideration for the future direction of the hydrological aspects. Potential for CREWS funding to support and/or supplement this for the longer-term should also be considered by the Task Team as part of a broader plan for future activities outside the scope of CIFDP-F. Dr Lee from APCC can contribute some time over the course of the project, to assist the hydrological aspect. <u>FMS noted that their long-term goal is to operate hydrological flood forecasting models that require certain data that are not currently available. In the interim under the CIFDP-F timeframe, a decision tree would be feasible for forecasting purposes and the hydrological task team will be able map what is needed to reach the longer-term goal. The Task Team could also explore the use of other technologies such as regression analysis, transfer function modelling and</u>			
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	Fuzzy Logic to achieve the longer-term goal.			
Next Steps, Technical Aspects – SSH Anomaly Implementation	Sea surface height anomaly (SSHA) data is already available through the Copernicus program. This will be input directly into FEWS.			
Next Steps, Technical Aspects – FEWS Implementation	FEWS : Flood Early Warning System. Implementation of the FEWS platform is likely from April 2018 in the 3rd year of funding, once all the flood component products have been developed (wave, surge, river, tide, SSHA, bathymetry, DEM).			
Links with related programmes - SWFDDP	Links established through MetConnect, and FMS receives regular support from SWFDDP through New Zealand Met Service. SPC do not yet have connection to MetConnect - this needs follow up (past action from August 2016 Meeting).	Continue to engage and invite SWFDDP to the CIFDP-F, and for FMS and SPC to follow up with SWFDDP on what is required. Ensure SPC have access to MetConnect.	FMS and SPC FMS and WMO	Ongoing August 2017
Links with related programmes – RAV TT-CISS and other Pacific	Summary of the RAV Tropical Cyclone Committee's Task Team for Coastal Inundation and Storm Surge (TT-CISS) was explained - noting that the Team has complementary activities to the CIFDP-Fiji and CIFDP-Indonesia. Next RAV Tropical	CIFDP-F PSG (Swail) to check with Chair (Rhome), TT-CISS prior to RAV TCC in mid 2018, to ensure that CIFDP is reported to the TT-CISS.	CIFDP-F Chair and WMO	early 2018

Met Programmes	Cyclone Committee will meet mid 2018, so it would be good for CIFDP-F to be proactive and report to the Task Team just prior to then. Pacific Met Council Meeting will be held in Honiara in August 2017. The Pacific Met Council has formed the Pacific Island Marine and Ocean Services (PIMOS) Panel - priorities for PIMOS include coastal inundation and safety of life at sea (SOLAS). SPC (Kruger) and PI-GOOS (Tommy Moore) will be at the meeting and will report about coastal inundation (including CIFDP-F) to the Pacific Met Council.	SPC and PI-GOOS to check with TT-CISS Chair for input to the Pacific Met Council report in August 2017	SPC and PI-GOOS	August 2017
Links with related programmes – JICA and KMA Bilateral	JICA has strong involvement in Fiji, with a Senior JICA Adviser based in Nadi. JMA noted that the main purpose of the storm surge training from Japan into Fiji, is part of a wider regional capacity building initiative in the Pacific through the RSMC Tokyo. Whoever does the forecasting for the Nadi area needs to be aware and briefed on the Japanese proposal for dredging in the Nadi Basin - this has the capacity to completely change the system and flood modelling. Needs to be good cross-briefing between the flood forecasting development project (eg via JMA and JICA) and the Japan Dredging initiative. Nadi Flood Alleviation Project (Fiji Govt is the initiator, JICA were the consultant to carry out the feasibility study). Fiji Govt will submit an application to the Green Climate Fund for this.	Follow up on the flood control measures and river improvement activities in the Nadi River - check whether the Fiji Government Department proposing the flood control measures are in communication with FMS to ensure known impacts to flood forecasting in Nadi Basin.	NCT and FMS	Ongoing

Links with related programmes – CREWS, SPC, Tuvalu Met Service and other initiatives	The Climate Risk Early Warning System (CREWS) was the result of Paris COP 2015 - is a fund for adaptation and risk reduction measures for society. There are 2 CREWS proposals for SIDS, especially one for SE Asia and SIDS. FMS has been targeted to receive funds. SWFDDP is strengthening the FMS by enhanced numerical capability for forecasting and strengthening RSMC-Nadi. This would allow higher resolution numerical weather prediction and training support. Allows better forecasting of severe weather conditions, including rainfall. Developing the FFGS is also in this funding package. However, there is also the need to strengthen the FMS hydrometric monitoring programme. WMO - through CREWS funding - will be working with FMS to enhance various systems. SPC noted that in response to the recent emphasis placed by WMO on impact based forecasting, SPC are working with NIWA to assess the impact assessment capacity for Samoa and Vanuatu. SPC - supported by Geoscience Australia (via DFAT) - are conducting similar activities in Tonga and Fiji. As well, SPC is receiving World Bank support for other impact assessment activities in the Marshall Islands. . Tropical Cyclone Pam (2015) over Vanuatu caused waves to propagate and hit Tuvalu. In response, German Aid has contributed funds to support Tuvalu develop forecasting for extreme ocean waves. This has political support from Tuvalu			
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	Prime Minister, and implemented by SPC. This has links with CIFDP-F, especially when SPC undertake training for wave modelling - SPC may bring Tuvalu Met office to the CIFDP-F training for FMS (paid for by German Aid).. SPC has also received request from Niue for technical assistance in marine weather forecasts.. SWFDDP intended to go there and conduct training, but at present, SPC do not know the status. COSPPAC - Climate and Oceans Support Program in the Pacific - funded by Australia - and partnered with SPC. The COSPPAC Pacific Ocean Portal is the main site for ocean data. SPC have been conducting training in the region. The ocean data, and training can be used to support and synergise with CIFDP needs for both data and training.			
Training – Technical Training Requirements for Forecast Agencies	Training is a key aspect of the CIFDP, but in stages. Immediate focus is for SPC and FMS training to ensure relevant capacity for the forecasters to be trained in system design operation. Once products are developed, there will be scope for end-user training. Immediate training in Nadi in August, by JICA and JMA - SPC requesting that the new oceanographer to join this training to meet the group, and to learn. Discussion from PIMOS Panel, with request for QMS on marine			

	observations and products to be included in regional work. Pimos Panel can include this within their project planning. Marine QMS is being developed by JCOMM, and should be considered in CIFDP.	WMO to link the QMS and CIFDP at the JCOMM-5 to ensure the connection.	WMO	JCOMM-5 (October 2017)
Training –End User Requirements	Training for end-user requirements will be needed toward the end of the project, once products are developed.			
Training – Education and Awareness Issues	The NOAA <i>Storm Surge Fast Draw</i> video was shown again as it was in 2016. A concept note has been devised by WMO to create a similar video focussed on the Pacific Islands. The key need now is for a person to coordinate the creation of a video for the Pacific Islands, and a funding agency needs to be identified to support the creation and dissemination of the video.	SPC and PI-GOOS to raise awareness of the video concept to the Pacific Met Council Meeting in August 2017 in Honiara. Designate someone to progress the video concept and identify a funding agency to support the creation and dissemination of the video.	SPC and PI-GOOS WMO	August 2017 After November 2017
Proposed End-to-End Forecast Simulation Exercise	Examples from CIFDP-Bangladesh and CIFDP-Indonesia were provided by Bapon Fakhruddin, explaining the end to end impact based early warning system (EWS) and how the end to end forecast simulation exercise responds to this EWS. Development of the CIFDP-F tabletop simulation exercise framework (not public) was proposed - with the intention to operate near the end of the CIFDP-F, to test the CIFDP-F	Consider the timing of the simulation exercise and ensure it is captured in the budget for the 3rd year (2019) of the proposal.	WMO	During 2018

	framework. The Exercise generates various scenarios (eg worst case and normal conditions) to test how the end-to end forecast system and user response works. It would be advisable to use TC Winston as a scenario, given it was the largest TC ever experienced in the Southern Hemisphere. It was agreed that the proposed Simulation Exercise could be carried out towards the end of CIFDP-Fiji, aiming for late 2018 or early 2019.			
Update Project Plan for CIFDP-F	Revision of Technical Project Plan, scope and timeline was discussed.	Update the Project Activities with more details regarding specific activities and timelines, based on the outcomes of this meeting.	CIFDP Co-Chair (Swail)	September 2017
Project Management	The proposed project activities, as outlined in the Concept Proposal endorsed by KMA, were summarised. WMO noted that at present, only one year of funding has been received from KMA, but in principle KMA have committed to 3 years of funding. Installments will be paid on condition that KMA is satisfied with the progress of deliverables. SPC noted that their current contract with WMO (using KMA funds) doesn't involve the storm surge model, so SPC will not be commencing that in their first year of contract, unless further funds and deliverables were added to supplement the	FMS to share their Strategic Plan (once complete) to the CIFDP-F PSG WMO to check who will own the data produced by the project.	FMS WMO	TBC (when the Strategy is available) August 2017

	LoA, after receipt of the 2nd year of KMA funds. FMS are currently developing a Strategic Plan (especially over next 5 years). CIFDP-F PSG would like to see it, to understand better how the CIFDP-F supports the strategic plan. The question was asked: who owns the data in the project? WMO committed to check the answer on notice.			
Any Other Business	The question was raised regarding the engagement of the NCT, and when does this occur. It was stated that FMS take the lead to communicate with the NCT, either by email or face to face meetings. The suggestion was made that the NCT should be informed of the outcomes of this meeting.	Maintain regular engagement with the NCT informing them progress of the project. Inform the NCT about the outcomes of this Meeting.	FMS FMS	Ongoing September 2017
NEXT MEETING	The next Review Meeting (in Fiji) date will be decided, based on the progress of deliverables, anticipated in the second half of 2018, and inclusive of the NCT. If the Hydrology Task Team wish to meet face to face, they are to inform the WMO when they wish to meet.	WMO to determine the date of the next meeting in consultation with FMS. Hydrology Task Team to inform WMO when they wish to meet (if they do).	WMO and FMS Hydrology Task Team	2018
Closure	Meeting was closed on Thursday July 27 at 1300 !			

PARTICIPANTS

CIFDP Co-Chair: Val Swail

WMO Secretariat: Paul Pilon, Sarah Grimes, Henry Taiki

Fiji Met Service: Ravind Kumar, Misaeli Funaki, Vili Verenaimalu, Amit Singh, Stephen Meke

SPC: Jens Kruger, Herve Damlamian, Judith Giblin

CIFDP-Fiji Experts:

NIWA: Graeme Smart (CHy and WMO Opache Representative)

BOM: Mikhail Entel

CIFDP PSG and Tonkin Taylor: Bapon Fakhruddin

APCC: Seongyong Lee (CHy and WMO Opache Representative)

JMA: Nadao Kohno

Local/Regional Stakeholders:

SPREP (PI-GOOS): Tommy Moore

Fiji Maritime Safety Authority - Philip Hill (Day One only)