



JOB DESCRIPTION

Job Title:	Coastal Numerical Modelling Specialist
Division/Programme:	FEMA/FAME and OPM/GEM
Location:	Suva
Reporting to:	Principal Fisheries Scientist (FEMA/FAME) and Team Leader Ocean Prediction and Monitoring (OPM/GEM)
Number of Direct Reports:	0
Purpose of Role:	The jobholder is responsible for the effective and timely development, and implementation of hydrodynamic numerical models throughout the Pacific Region. The primary focus will be on regional and local circulation models. Within the framework of new SPC Climate Change Flagship, the jobholder will also ensure that partners and stakeholders have the understanding and skills to use the products and information developed, and that model data are relevant and accessible.
Date:	July 2023

Organisational Context and Organisation Chart

SPC is committed to bringing together our deep sectoral expertise, research, relationships, and implementation experience into Flagship Programmes. These programmes accelerate our efforts to address the challenges and opportunities facing the Blue Pacific in the 21st century, and work together with our members and achieve impact for Pacific people. They support a transformation in our institutional effectiveness as part of SPC's Strategic Plan 2022-2031 and the 2050 Strategy for a Blue Pacific.

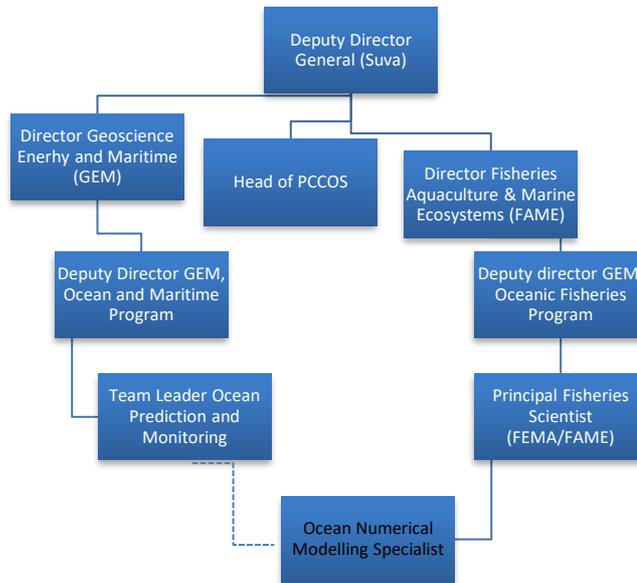
The **threat of climate change** demands SPC take a whole of organisation response to this critical regional challenge. SPC is in the process of developing and strengthening a more strategic and integrated approach of climate change, through a **Climate Change Flagship Programme (CCFP)**. This flagship seeks to enhance climate change services and capability in a more wholistic, strategic, and cohesive way.

The CCFP aims to bring greater visibility to the breath of SPC's climate change action and related resilience work, progress this in a manner consistent with the demand for ambition and support from members and leverage the commensurate resources to support this. This aligns directly to the implementation of KFA 1: "Resilience and Climate Action" which is at the centre of the new SPC Strategic Plan and should also help to more clearly define SPC's value add to the region in the climate change space and its complementarity with the capability and services of other regional architecture supporting our members. The **Climate Change and Environmental Sustainability Programme (CCES)** is charged with facilitating its development and implementation, however all divisions, teams and programmes of SPC are also contributing.

The CCFP will be informed by SPC's Strategic Plan, the FRDP, climate change priorities espoused by the Heads of sector meetings convened by SPC, its Governing Council, the 2050 Strategy, Pacific priorities in climate change negotiations and national policies.

CCFP task 6.i : "Develop a free and open-source dataset of comprehensive climate change projections (oceanic and atmospheric) for all Pacific countries and territories". This task will be conducted jointly by the team

Ocean Prediction and Monitoring in Geoscience and Energy division (OPM/GEM), the Fisheries Ecosystem Monitoring and Analysis team in the Fisheries, Aquaculture and Marine Environment Division (FEMA/FAME), and the Pacific Community Center for Ocean Science (PCCOS), in collaboration with the Institute for Research and Development (IRD).



Key Result Areas (KRAs)

The Coastal Numerical Modelling Specialist will participate in the CCFP task 6.i: “Develop a free and open-source dataset of comprehensive climate change projections (oceanic and atmospheric) for all Pacific countries and territories”.

The position encompasses the following major functions or Key Result Areas:

- **Hydrodynamic numerical modeling**
- **Training and information transfer**
- **Project planning and implementation**

The performance requirements of the Key Result Areas are broadly described below

Jobholder is accountable for	Jobholder is successful when
<p>KRA 1: 50% Numerical modelling</p> <ul style="list-style-type: none"> • Responsible for implementation of numerical models of regional to coastal. • Build weather and climate variability and change scenarios based on statistical/probabilistic studies. • Use efficient modelling framework whenever relevant to explore large sample of scenarios (e.g. hybrid modelling approach) or to explore efficient operationalisation of the models. • Advise on regional and national oceanographic / modelling issues and way forward. • Create seamless bathymetry from different dataset. 	<ul style="list-style-type: none"> • Calibrated numerical models are produced in response to demand/needs and results are available to stakeholders. • Model output and uncertainties are well assimilated into coastal management projects and/or early warning systems. • Modelling capacity is maintained at a high standard and efficiency. • Modelling activities are delivered within the agreed timeframe.

<ul style="list-style-type: none"> • Keep up-to-date with modelling and oceanographic technology. • Advice on computational needs to sustain numerical modelling activity. • Test/modify modelling programs and ensure integration of output into GIS system and databases (e.g. THREDDS). • Automate frequent task by way of programming to speed up workflow. 	
<p>KRA 2: 30% Training and information transfer</p> <ul style="list-style-type: none"> • Support online information sharing and accessibility for stakeholders with a client focused approach • Service data requests from stakeholders and industry partners • Respond to feedback, bug reporting, and new feature recommendations • Support internships, training, and professional attachments • Forge close linkages with other climate and weather information services and ocean related projects • Provide training for member country nationals to understand and apply modelling outputs to coastal zone management and risk reduction, as well as contribute to the delivery of general ocean related training in the Pacific through workshops • Make graphical output to ensure the knowledge transfer from the model to stakeholders 	<ul style="list-style-type: none"> • Model outputs are converted into actionable information/knowledge products tailored to stakeholder needs. • Stakeholders have the capacity and understanding to apply products derived from model outputs in their day to day work • SPC's ocean and coastal products and tools are improved, feedback is sought and incorporated • Computer code and algorithms are in place for testing and to support stakeholder requests and improve service delivery • Sector specific products are developed and have demonstrated impacts on decision making • Model output is delivered in an adequate format to optimize its use by stakeholders. • The training conducted meets stakeholder needs and requirements • Training materials are tailored to the audience • MELs standards are met, attendance list are completed and post-training report are produced
<p>KRA 3: 20% Project Support and Implementation</p> <ul style="list-style-type: none"> • Assist in developing costed work plans, providing timelines and outputs; plan and advise on numerical modelling requirement. • Follow-up on the Letter of Agreement with IRD signed for the project. • Support the development of project proposals. • Maintain good communication with project stakeholders and partners. • Keep track of project timelines. • Support the organisation of workshop and project meetings. • Support procurement activities. 	<ul style="list-style-type: none"> • Project documents (e.g., budgets, costed workplans, daily and issue logs, MEL) are accessible and up to date. • Project implementation is monitored • Procurement follows SPC rules and regulations • Lessons learnt are collated, accessible and capitalised on. • Project meetings are held regularly as required. • Communication between the project team and stakeholders is effective.

<ul style="list-style-type: none"> • Support annual reporting (e.g., MEL) when relevant. 	
---	--

Note

The above performance standards are provided as a guide only. The precise performance measures for this position will need further discussion between the jobholder and supervisor as part of the performance development process.

Most Challenging Duties Typically Undertaken (Complexity)

<ul style="list-style-type: none"> • Calibrating model using low resolution and/or sub-optimum baselines. • Modifying and/or testing different modelling programs as well as stitching or nesting them together • Manage ad hoc requests made outside of the agreed work plan • Work with people from different backgrounds according to culture and work ethics • Engaging with practitioners and professionals from sectors and disciplines not related to ocean or climate science • Cross-divisional work

Functional Relationships & Relationship Skills

Key internal and/or external contacts	Nature of the contact most typical
Key internal contacts are: <ul style="list-style-type: none"> • Management Team (FAME/GEM/PCCOS) • Unit Team Leaders FAME and GEM • Colleagues and peers • Administrative and support personnel • Technical leads within other SPC programmes 	<ul style="list-style-type: none"> • To seek approval and advice for various tasks, e.g., workplan and activities • Planning activities and tasks • Budgeting and reporting
Key external contacts are: <ul style="list-style-type: none"> • Technical partners within international and regional organisations such as NIWA, NOAA, BoM, GA, LINZ, UNDP, IRD, SPREP, CROP agencies (SPREP, USP etc.) • National entities in member countries such as Meteorological departments, Fisheries, Lands and Survey Departments, and maritime sectors, etc., including other sectors such as health etc. • Consultants, companies and service providers, e.g., publications editors, printers, training consultants, specialists, etc. 	<ul style="list-style-type: none"> • Collaborate on country specific activities and regional initiatives, preparing documents, training workshops, etc. • Technical exchange, seeking/giving advice and support, product development, preparing and conducting training workshops, etc. • Liaising on products and services, checking and testing outputs, delivery of outputs, assisting with the procurement of services

Level of Delegation

Routine Expenditure Budget: 0 €

Budget Sign off Authority without requiring approval from direct supervisor: 0 €

Personal Specification

This section is designed to capture the expertise required for the role at the 100% fully effective level. (This does not necessarily reflect what the current position holder has.) This may be a combination of knowledge /

experience, qualifications or equivalent level of learning through experience or key skills, attributes or job specific competencies.

Qualifications

Essential:	Desirable:
<ul style="list-style-type: none"> MS in oceanography, ocean engineering, data management or related fields. 	<ul style="list-style-type: none"> PhD in oceanography, ocean engineering, data management or related fields. Formal training course in numerical modeling software, ideally CROCO.

Knowledge/Experience

Essential:	Desirable:
<ul style="list-style-type: none"> At least 5 years of working experience on applied multidisciplinary projects including modelling and solving problems related to hydrodynamics of coastal systems such as waves, circulation, dispersion, pollution and storm surge, tsunami inundation. Expert level computer literacy, experience with computer programming and specialised physical oceanographic and open source modelling software packages, specifically SCHISM, ROMS, NEMO or CROCO. Sound knowledge of operational ocean forecasting and physical processes relating to tropical ocean circulation. Capable and organised report preparation and communication skills. Strong Analytical skills and ability to master new technology quickly. Demonstrated Oral and written communication skills in English. Aptitude for the provision of high-quality service Ability to provide necessary training and transfer of skills as demanded by the project. Ability to set priorities to meet deadlines. 	<ul style="list-style-type: none"> Professional practical experience in Pacific Island environments Strong awareness of Pacific issues particularly as they relate to vulnerability to climate change and variability as well as extreme events such as tropical cyclone and marine heat waves

Key Skills/Attributes/Job Specific Competencies

The following levels would typically be expected for the 100% fully effective level:

Advanced level	<ul style="list-style-type: none"> Excellent up-to-date numerical modelling skills, such as ROMS, NEMO or CROCO and GIS platform such as QGIS. Ability to program using platforms such as Python and Matlab. Excellent level on data processing, analysis and interpretation skills. Sound knowledge of Linux platform. Advanced knowledge in remote sensing applications relating to shallow water coastal environments. Prepare digital and written reports as well as interpretive products.
----------------	---

Working knowledge	<ul style="list-style-type: none"> • Management of modelling data and updating online portals with information. • Knowledge of Meteorological and weather patterns.
Awareness	<ul style="list-style-type: none"> • Have a broad understanding of the region and its technical and human resource requirements. • Familiarity with the various strategies, frameworks, and roadmaps that guide climate change adaptation and disaster risk in the Pacific.

Key Behaviours

All employees are measured against the following **Key Behaviours** as part of Performance Development:

- Change and Innovation
- Interpersonal Skills
- Teamwork
- Promotion of Equity and Equality
- Judgement
- Building Individual Capacity

Personal Attributes

- High level of professional integrity and ethics
- Friendly demeanor
- Demonstrated high level commitment to customer service

Change to Job Description

From time to time, it may be necessary to consider changes in the job description in response to the changing nature of the work environment – including technological requirements or statutory changes. Such change may be initiated as necessary by SPC. This Job Description may also be reviewed as part of the preparation for performance planning for the annual performance cycle.