



CSIRO/CNES Workshop

Nouméa, New Caledonia, 15-17 April 2024

The main objectives of this workshop were, first, to understand key water quality challenges in New Caledonia and second, to identify a location for a pilot site in the context of the CSIRO's AquaWatch Australia Mission¹. Additional elements included identifying key local institutional stakeholders from communities and relevant government agencies in the water management sector, discuss and exchange ideas and explore partnership opportunities in the view to co-design a pilot project eligible for future funding.

In order to deliver a successful workshop, CSIRO and CNES leveraged local expertise through the New Caledonia Regional Animation Network ([ART Geo Dev NC](#)), created in May 2019 as a joint initiative of the startup company INSIGHT² and the French National Research Institute for Sustainable Development (IRD)³ in New Caledonia. With the active support of these local stakeholders, CSIRO and CNES managed to plan, promote and deliver this three-day workshop in Nouméa.

Working with local institutional partners, the aim of [AquaWatch Australia](#) is to monitor, forecast, help manage inland and coastal water quality, as well as associated aquatic ecosystems, while exchanging new experiences and capabilities. New Caledonia is a prime location in the South Pacific region for coastal environmental research. Because of its proximity to Australia, it also shares the same remarkable ecosystems: for instance, New Caledonia's Barrier Reef, listed as a UNESCO site in 2008 and running along 1,600 km of coastline making it the second largest Barrier Reef in the world, faces similar challenges to the first one, Australia's Great Barrier Reef.

New-Caledonia also has voted its own *Politique de l'Eau Partagée* (Shared Freshwater Policy). Under this policy, initiatives like AquaWatch Australia can facilitate progress on various strategic objectives (OS) and transversal objectives (OT). In particular: OTB "water data", OS4: "zero pollution", OS5: "water and planning", OS2: "drinking water" and OS1: "protect strategic resources".

The various presentations and discussions during this 3-day workshop highlighted that Earth observation techniques for water quality monitoring are not routinely used in New Caledonia. An AquaWatch Australia pilot site in the region would fill this gap by offering a unique opportunity to solve some of New Caledonia's environmental challenges by using AquaWatch's technology in close collaboration and partnership with local agencies and communities.

¹ <https://www.csiro.au/en/about/challenges-missions/aquawatch>

² <https://insight.nc>

³ <https://en.ird.fr/geographical-areas/new-caledonia>



Executive summary / short communique

In 2019, CNES and CSIRO signed a high-level agreement on Earth observation (EO) to strengthen bilateral cooperation. A CSIRO-CNES workshop on water quality monitoring was delivered in Nouméa on 14-16 April 2024, facilitated by the New Caledonia Regional Animation Network (ART Geo Dev NC), which aimed to explore scientific collaboration opportunities in New Caledonia, a French territory in the Pacific only a two hour-flight from Brisbane.

More specifically, this joint workshop in Nouméa helped CSIRO's AquaWatch Australia Mission (AquaWatch) to understand regional water quality issues in the region, while developing collaborations with CNES and local partners, such as IRD or Ifremer, and promoting the use of data from both satellite missions (e.g. from current SWOT and Sentinels missions and upcoming Trishna mission) and *in-situ* water quality instruments. This successful workshop demonstrated the quality of the collaboration, partnership and teamwork between members based in France, Australia and New Caledonia, as CSIRO and CNES worked closely with local stakeholders and water quality experts in Nouméa, thanks to ART GeoDEV NC to plan and deliver this event. The preparation included an information webinar early February to socialise the event in the local community. The 3-day workshop in April featured 25 in-person attendees, including representatives from research institutions and universities, local agencies, industry and water quality decision makers. The first day was dedicated to presentations on AquaWatch, CSIRO, CNES and local government agencies, the second day targeted technical discussions and way forwards in the context of regional environmental issues, and the third day included a site visit of *La Coulée* located in the town of Mont-Dore (a 30-minute drive away from Nouméa; Figure 3), ending with a round-table discussion at IRD.

This workshop fostered open discussions with local end-users to clarify their needs, challenges and showcase their existing capacities and allowed CNES and CSIRO to meet with Members of the Government of New Caledonia currently in office, in particular two ministers tasked to implement transitional changes and new technologies.

Workshop participants highlighted key environmental priorities in New Caledonia, particularly the increase of erosion (from both natural and anthropic sources) and its effects on water turbidity (e.g. pollution, water quality/quantity) and mangroves. This workshop also identified key partners and up to six potential pilot site locations for AquaWatch in New Caledonia, leveraging existing projects and resources already committed to meet local needs:

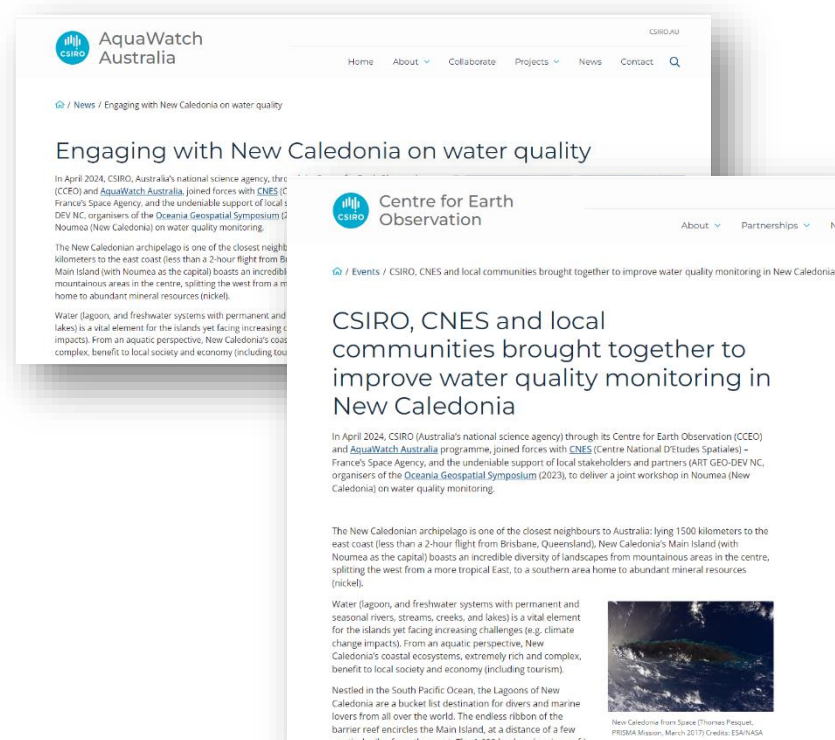
1. La Coulée
2. Voh Koné Pouembout region
3. Prony region
4. Thio
5. La Tontouta
6. Dumbéa

Nouméa and the island of Ouvéa were added as potential pilot sites in the context of coastal regions only, as neither Nouméa nor Ouvéa have any inland water bodies.

This 3-day workshop provided CSIRO and CNES with a unique opportunity to engage with local stakeholders understand environmental issues in this key region of the South Pacific and to identify water quality issues impacting the local communities and future needs. The highest environmental priorities discussed by the workshop attendees were erosion and turbidity, in particular pollution monitoring following fires events or mining activities, drinking water quality and quantity vulnerability, and mangroves extension and health. A second edition of the Oceania Geospatial Symposium (OGS) is planned in 2025 and will offer an opportunity to further progress discussions and collaborations in the context of an AquaWatch pilot site in the South Pacific region. A regional pilot site in New Caledonia would be a proof of concept showcasing the benefits of AquaWatch technology to the broader the South Pacific region.

Published news articles:

- <https://research.csiro.au/cceo/csiro-cnes-and-local-communities-brought-together-to-improve-water-quality-monitoring-in-new-caledonia/>
- <https://research.csiro.au/aquawatch/engaging-with-new-caledonia-on-water-quality/>



Report

Context

In the context of the cooperation between CNES and CSIRO (Letter of Intent (LOI) on Earth observation (EO) collaboration, signed in 2019), and also the cooperation between CNES and the Government of New Caledonia (a Framework Convention was signed in 2022), the parties are interested in establishing scientific collaborations on earth observation applications in the South Pacific through an AquaWatch pilot site in New Caledonia to resolve environmental issues, in particular water quality both inland and coastal.

Workshop organisers

Ms Flora Kerblat	CSIRO S&A	International engagement Lead, Centre for Earth observation and AquaWatch
Mrs Isabelle Fratter	CSIRO S&A / CNES	Visiting scientist
Dr Alex Held	CSIRO S&A	Mission lead, AquaWatch, Chair
Dr Selma Cherchali	CNES	Head of Earth Observation
Mr Aurelien Carbonniere	CNES	Earth Science expert
Dr David Blondeau-Patissier	CSIRO Environment	Research scientist
Mr Jean Massenet	ART GEODEV NC / INSIGHT	Director
Ms Pearl Winchester	ART GEODEV NC / INSIGHT	Project manager
Mr Marc Despinoy	IRD	Engineer
Mr Adrien Bertaud	OEIL	Lead, Environmental Dept

Attending parties (delivering the workshop)

Dr Alexander Held	CSIRO S&A	Mission lead, AquaWatch, Chair
Dr Selma Cherchali	CNES	CNES Deputy Director Lead, Chair
Dr David Blondeau-Patissier	CSIRO Environment	Research scientist
Mr Jean Massenet	ART GEODEV NC / INSIGHT	Director, Chair
Ms Pearl Winchester	ART GEODEV NC / INSIGHT	Project manager, Chair

Participation and workshop's organisation

A workshop, hosted by ART GEODEV NC / INSIGHT (OoTECH, 34 Rue du Général Gallieni, Nouméa 98800, New Caledonia) over three days, from Monday 15th to Wednesday 17th April 2024, was chaired by Dr Alex Held (CSIRO, AquaWatch Australia Mission Lead) and Dr Selma Cherchali (CNES, Head of Earth Observation Program) and facilitated by Ms Pearl Winchester (ART GEODEV NC / INSIGHT) and Mr Jean Massenet (Geospatial Animation / ART GEODEV NC / INSIGHT New Caledonia) (Figure 1). The first day was a meet-and-greet: out of the 50+ invitees for this three-day workshop, there was an estimated 25 in-person

attendees from IRD New Caledonia, local government agencies (OEIL, ADECAL, Public Health, DAVAR), French agencies (Data Terra, BRGM) and university (UNC) as well as representatives from the mining industry (CNRT, SNL), the private sector (AEL) and NGOs (Conservation International, WWF). This first day was aimed at presenting the benefits of the AquaWatch Australia Mission to New Caledonia, as well as understanding the potential regional needs from the local environmental and government agencies and the New Caledonian community.



Figure 1 Group photo: the various attendees, chairs and facilitators of this workshop.

The second day was dedicated to more technical and in-depths discussions. This second day was on invitation only, resulting in less attendees to allow for group activities and targeted discussions related to AquaWatch Australia, New Caledonia's environmental needs and the identification of potential pilot sites in the region. Two ministers from the New Caledonian government (Mr Vaimu'a Muliava, Change and new technologies and Mr Jérémie Katidjo Monnier, ecology and transitions) attended a workshop dinner on the evening of this second day.

The third day included a field visit of *La Coulée* (morning), an important estuary (11 Km) in the southern portion of New Caledonia often subject to floods in the region, and a round table discussion (afternoon), joined by other researchers from Ifremer, CNRS and UNC, at IRD headquarters.

Outcomes

There is a shared and strong desire by both CNES and CSIRO to support future AquaWatch (& other) collaboration opportunities in New Caledonia. This three-day workshop was very well organised and resulted in fruitful discussions with NC agencies. CNES and the NC government already have high-level agreements in place which will possibly be used as leverage for future engagements. There was also strong interest by the NC government levels (Ministers Mr Vaimu'a Muliava and Mr Jérémie Katidjo Monnier) to establish AquaWatch-related activities in New Caledonia. A demonstration of this interest was the mention of AquaWatch Australia by Minister Mr Vaimu'a Muliava at the Forum Caledonien du Changement Climatique on the following day (Thursday 18 April) (climate change summit; <https://gouv.nc/forum-caledonien-du-changement-climatique-2024>), as well as the spontaneous invitation of Dr Selma Cherchali (CNES) and Dr Frederic Huyn (DataTerra) to talk on stage during this meeting (Figure 2).



Figure 2 Dr Selma Cherchali, Dr Frederic Huyn invited on stage during the Forum Caledonien du Changement Climatique (Thursday 18 April 2024, Dumbéa, New Caledonia).

Local R&D institutions (IRD) and Universities are also interested in partnering in some form of collaborative pilot project (subject to funding). The location of a possible AquaWatch pilot site is still to be decided. AquaWatch Australia will rely on the local partners in New Caledonia to decide the most suitable location for this site.

Key outcomes:

- New Caledonia needs more skillsets and capabilities in earth observation (remote sensing) and will need to develop skills in cloud computing for this pilot project to succeed. Possible partnership with DataTerra (French Government) or Australian Universities such as the University of Queensland, should be explored.
- Data analytics: opportunities for CSIRO to work closely with [DataTerra](#), a French program in support of Copernicus data access for the South Pacific region)
- Identified potential organizations to rely on:
 - CNRTEC (“ForMaTer” project);
 - University of Caledonia ([UNC](#), “Diversité” project and links to research ecosystems, CRESICA, PIURN);
 - IRD and IFREMER (already working with BiOceanor);
 - DataTerra is very interested in this pilot project;
 - Strong interest from the Agence Francaise de Developpement (AFD) (impacts of CC with AFD on oceans);
 - Strong interest from the local Government of New Caledonia.
- Identification of turbidity and erosion as the main water quality issues for continental water, discussion around the field difficulties and opportunities with New-Caledonia's stakeholders.
- At least 6 potential main sites identified (see table below). New-Caledonia will need to focus on 1 to 3 maximum, depending on the stakeholders getting involved in the project.
- Selma Cherchali from CNES and DataTerra’s director Frederic Huynh were invited at the roundtable “challenges and summaries” during the Forum du Changement Climatique (Climate Change Forum) on Thursday April 18th (see photo above).

Conclusion

This workshop ran very well and was a success, thanks to the commitment of CSIRO and CNES teams leveraging strong local support from ART GeoDEV NC and its co-animators from Insight NC, Mrs Pearl Winchester and Jean Massenet.

It presented excellent partnership opportunities between local communities and institutional national organisations such as CSIRO and CNES with the objective to better combine and foster synergies between in situ expertise and remote sensing knowledge for the benefit of water management in this region.

Sites selection on Day 2 of the workshop (see Figure 3):

Site	Erosion issues	Drinking water issues	Threaten human habitat
La Coulee	medium	medium	medium
VKP Rivers*	medium	medium	medium
Prony	large	none	none
Thio	large	medium	medium
La Tontouta	large	large	medium
Dumbea	medium	large	medium

*VKP - Voh, Koné & Pouembout region

Key recommendations and next steps

- Support bilateral exchanges between CSIRO (or/and CNES) and CNRTEC or UNC.
- Re-engage with ART GeoDEV to follow-up on the discussions and suggestions from this workshop during the next Oceania Geospatial Symposium if CSIRO or CNES representatives are in attendance.
- Scoping the establishment of a joint CNES – New Caledonia - CSIRO AquaWatch pilot site, perhaps one related to aquaculture (e.g., shrimp farming).

Appendix

- Map and proposed pilot site locations



Figure 3 Sentinel-2 MSI cloud free composite of New Caledonia and the proposed locations for the six pilot sites, namely 1: VKP; 2: Thio; 3: La Tontouta; 4: Dumbea; 5: La Coulee; 6: Prony. Insets feature the most likely pilot sites for this project. ©<https://s2maps.eu/>; on this map, site numbers are listed from left to right by increasing order for visual ease only.

- **Key hyperlinks**

IRD New Caledonia (official site)	https://en.ird.fr/geographical-areas/new-caledonia
IRD/ CNRS Entropy: The Hope project	https://en.ird.fr/hope-project-smart-buoy-studying-carbon-sequestration-capacity-tropical-oceans
The Hope project – official website	https://www.hope-erc.eu/
Institut Pasteur in New Caledonia	https://pasteur-network.org/en/members/asian-region/ip-new-caledonia/
CNRS UMR Entropie	https://umr-entropie.ird.nc/index.php/home-en/home/research/research-themes/conservation-sustainable-management-and-enhancement-of-marine-biodiversity
Ifremer delegation in New Caledonia	https://nouvelle-caledonie.ifremer.fr/
ReefTEMPS	https://www.reeftemps.science/en/home/
Thoe instrumentation	https://www.ael-environnement.nc/thoe/
New Caledonia - government	https://gouv.nc/gouvernement-et-institutions/les-membres-du-17e-gouvernement
University of New Caledonia	https://unc.nc/en/

- **Workshop organisation and planning webinars**

Date	Objective
December 2023-January 2024	CNES/CSIRO preliminary meetings
Wednesday 7 th February 2024	Initial "AquaWatch in New Caledonia" Webinar information session
Tuesday 27 February 2024	CNES/CSIRO workshop Nouméa logistic
Thursday 14 March 2024	Workshop organisation #1 (prep)
Tuesday 19 March 2024	Workshop organisation #2 (planning Day 1)
Thursday 21 March 2024	Workshop organisation #3 (planning Day 2)
Friday 22 March 2024	Workshop organisation #3 (finalisation)
Wednesday 27 March 2024	Coordination and final checks
Tuesday 02 April 2024	Agenda finalisation
Saturday 13 April – Friday 19 April 2024	Travels and workshop delivery

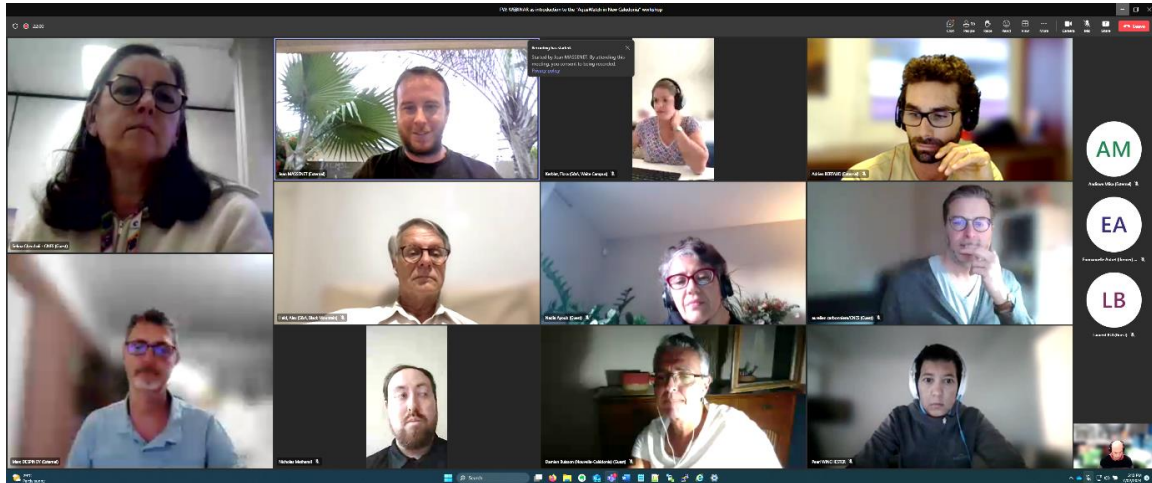


Figure 4 Screenshot of the first "AquaWatch in New Caledonia" workshop webinar on 7th February 2024, one of the many workshops online meetings led by Ms Flora Kerblat during the planning phase with the various contributors for this workshop.

- Workshop overview (summary)**

DAY 1	DAY 2 (by invitation only)	DAY 3 (by invitation only)
Welcome and introductions	AquaWatch Australia: programme overview (cont.), although more specific based on knowledge acquired on Day 1	Morning: Field trip to proposed site
CNES and CSIRO collaborations on EO	Why an AquaWatch pilot site in New Caledonia?	Afternoon: visit of IRD office
New Caledonia: presentations by the local institutions (government, research and industry)	Scoping design exercise (half day interactive workshop)	
Water quality priorities, monitored sites, applications and use cases (inland and coastal waters)		
AquaWatch Australia: program overview		

- **Agenda (detailed)**

DAY 1: Monday 15th April, Nouméa: Overview of Earth Observation, AquaWatch and water quality in New-Caledonia (Ootech)

Time	Agenda item	Speaker	Comments
07:30	Arrival and registration		
08:00 (30 min)	Welcome: Introduction and institutional speeches Workshop overview: 3 days program Context & background Workshop objectives Agenda confirmation Housekeeping & logistics for the next few days 5' overview of New Caledonia's geography (from an environmental perspective)	Jean Alex/Selma Jean Pearl	
08:30 (60 min)	SESSION 1: CSIRO and CNES activities in Earth observation in the Pacific, including New Caledonia		Focus on water (inland/coastal) and NC
	CNES EO Program (30') - CSIRO (20') Aquatic Remote Sensing activities Coastal & Inland observatories Coastal & Inland observatories AI/ML & datacube integrations Q & A session (10')	Selma Alex/David	Incl cal/val activities, ambition for pilot site for AquaWatch
9:30 (25 min)	Morning tea & group photo		Kakemonos
10:00 (15 min)	SESSION 2a: Shared Freshwater Policy (Politique de l'Eau partagée): priorities and water quality governance: Shared Freshwater public policy: context of the governance Water quality in NC: issues and priorities + governance and use of EO (incl. engagement with First Nations communities) Perspectives in the South Pacific (in the context of environmental monitoring, WQ); partnership opportunities? Q&A	NC Gouvernement DAVAR	(incl. water quality governance in NC)
10:15 (25 min)	SESSION 2b: state of the water quality research & operations in NC (public institutions):	Pearl Winchester	

	List of existing operational freshwater water quality monitoring (continental and coastal water) List of cases studies Q&A	
10:40 (90 min)	SESSION 2c: state of the water quality research & operations in NC (research institutions): List of existing operational freshwater water quality monitoring (continental and coastal water) List of cases studies Q&A	IRD IFREMER UNC ADECAL OEIL CNRT
12:00	Lunch	
13:30 (60 min)	SESSION 2d: state of the water quality research & operations in NC (industry and private sector): List of existing operational freshwater water quality monitoring (continental and coastal water) List of cases studies SESSION 2d: state of the water quality research & operations in NC (industry): List of existing operational freshwater water quality monitoring (continental and coastal water) List of cases studies	SLN (re) CNRT AEL/LEA
14:30 (20 min)	SESSION 3a: AquaWatch Australia Program overview Technical & research components Pilot sites Interest in NC collaboration Q&A	Alex
14:50 (20 min)	SESSION 3b: CNES TRISHNA et SWOT Program overview Technical & research components Pilot sites Interest in NC collaboration Q&A	Selma
15:10 (20 min)	Afternoon tea	Catered
15:30 (60 min)	SESSION 4: Open discussion : opportunities opening Which local partners are key for the project to be a success in NC? With what local governance of the project?	Jean/Alex/ Selma

	<p>How could we have private and public sector working together for our project? What are the brakes today for this type of collaboration?</p> <p>How could we integrate local community to the Aquawatch project?</p> <p>-</p>
16:30	Day 1 Closing
17:30	Dinner Cocktail

DAY 2: Tuesday 16th April: co-design AquaWatch New Caledonia pilot site (Ootech)

Time	Agenda item	Speaker	Comments
07:45	Arrival		
08:15 (15 min)	Recap Day 1	Alex/Selma	
08:30 (45 min)	<p>SESSION 5: Water quality monitoring and forecasting</p> <p>SESSION 5.1 : CSIRO</p> <p>CSIRO expertise: monitoring aquatic environments, current satellite sensors and tools</p> <p>Aquatic Validation sites</p> <p>coastal</p> <p>inland</p> <p>In situ sensors:</p> <p>Above-water: HydraSpectra</p> <p>Under water: other sensors, LISST.</p> <p>Key technical aspects of the AquaWatch program (<i>in situ</i> measurements, satellite, modelling)</p> <p>AI/modelling capabilities</p> <p>AquaWatch Data System (ADS)</p> <p>SESSION 5.2 : CNES</p> <p>WQ from Sentinel 2</p> <p>AOB</p>	<p>Alex/David</p> <p>Selma</p>	
09:15 (45 min)	<p>SESSION 6.1: Discussion on what is already being measured in NC (and locations), where are the gaps</p> <p>Geographic context of NC (map)</p> <p>Water quality data: Physicochemical? Hydrobiological?</p> <p>Ancillary data</p> <p>Continuous In situ measurement</p> <p>Satellite data processing</p> <p>Modelling: forecasting for water quality</p>	<p>Animator:</p> <p>CNES,</p> <p>CSIRO</p> <p>All</p>	

	<p>What skills are available in New-Caledonia in these different topics?</p> <p>SESSION 6.2: Contribution of expertise from NC What can New Caledonia provide in terms of datasets and/or data analysis? Which agency(ies) could provide technical and analytical support e.g., analysing the new data collected by newly installed instruments or regular instrument calibration. Discussion: status of WQ monitoring, and what is possible to measure in NC (inc. ancillary data), in situ and satellite?</p>		
10:00 (30 min)	Morning tea		
10:30 (90 min)	<p>SESSION 7: Scoping & mapping exercise AW New Caledonia Pilot site selection - what makes a good/suitable pilot site in NC? Water quality use case, objectives & outcomes of the project? Water quality variables of interest Key features/criteria for the site selection from AW perspective Outputs of the pilot site CNES criteria</p>	CNES, CSIRO	Might need to be used simultaneously with site selection (dependent)
12:00	Lunch		
13:00 (90 min)	<p>SESSION 8: Partnership vision – who will do what? AquaWatch Australia & CNES contributions Local partner(s) capability and co-funding capacity until 2026 Timeline/capabilities available</p>	Alex/new partnership manager/ ALL	
14:30 (30 min)	Afternoon tea		
15:00 (60 min)	<p>SESSION 9: Closing remarks & roadmap Logistics for the next day (TBC) Next steps, timeline Joint statement to be shared?</p>	Alex/Selma	
16:00	Day 2 closed		
19:00	Informal dinner (Location TBC)		



DAY 3: Wednesday 17th April: Field trip around Nouméa

Time	Agenda item	Comments
7:30	Meeting point: Le Lagon hotel	Booked shuttle (bus)
....	Field visit of coastal and land water quality monitoring sites around Nouméa	La Coulée: mangrove + site DAVAR + site mairie/WWF/CI
12:30	Lunch at IRD faré	IRD
13:30	Meeting of ENTROPIE – IRD salle 1 BiOceanor – technical exchanges	IRD
18:00	End of the field day	Returning to hotel(s)

- **List of invited participants (not all could attend this event)**

First name	Family name	Organisation
Selma	CHERCHALI	CNES
Alex	HELD	CSIRO
David	BLONDEAU-PATISSIER	CSIRO
Tim	MALTHUS	CSIRO (online)
Klaus	JOEHNK	CSIRO (online)
Adam	MacLEOD	CSIRO (online)
Jean	MASSENET	ART GEODEV / INSIGHT NC
Pearl	WINCHESTER	ART GEODEV / INSIGHT NC
Damien	BUISSON	New Caledonia gov. - DINUM - Service de la Géomatique
Laurent	BUI	New Caledonia gov. - DINUM – Mission transformation numérique
Kévin	DECLUDT	New Caledonia gov. - DINUM – Mission transformation numérique
Aude	ARRIGHI	New Caledonia gov. - DAVAR - Service de l'Eau
Charlotte	DUVAL	New Caledonia gov. - DASS - Bureau Santé Environnement
Joanne	TALLON	New Caledonia gov. - DASS - Bureau Santé Environnement
Olivier	MONGE	New Caledonia gov. - DIMENC
Vincent	MARDHEL	Bureau de Recherches Géologiques et Minières (BRGM)
Jérôme	VILLEMMAIN	Province Sud
Antoine	GUYONNEAU	Province Sud
Marc	DESPINOY	IRD
Christophe	MENKES	IRD
Sophie	BONNET	IRD
Farid	JUILLOT	IRD
David	VARILLON	IRD
Frederic	HUYNH	IRD
Benoit	SOULARD	IFREMER
Peggy	GUNKEL-GRILLON	University of New Caledonia (UNC)
Nazha	SELMAOUI	University of New Caledonia (UNC)
Adrien	BERTAUD	Observatoire de l'environnement Nouvelle Calédonie (OEIL)
Sébastien	SARRAMEGNA	Société Le Nickel
Maëlle	THILLIER	ADECAL Technopole
Jean-Michel	FERNANDEZ	AEL/LEA
Cédric	HAVERKAMP	Conservation International (CI)
Emma	BOYER	Office Français de la Biodiversité (OFB)
Sébastien	LAGARDE	INSIGHT NC
Solène	VERDA	World Wide Foundation (WWF)
Fabien	TROTET	CNRT Nickel et son Environnement
Médéric	SUON	CNRT Nickel et son Environnement
Yannick	DOMINIQUE	BioEko
Vaimua	MULIAVA	New Caledonia government (minister)
Jérémie	KATIDJO-MONNIER	New Caledonia government (minister)
Bertrand	TURAUD	Cabinet KATIDJO-MONNIER, membre en charge de la PEP
Frantz	FILIMOANA	Cabinet MULIAVA, membre en charge du spatial/géospatial