

Water quality monitoring DAVAR - SDE



Water quality monitoring (physico-chemical)

DAVAR



Regular monitoring since 2018:
~50 water quality sites



In-situ manual sampling – no
automatic sampling sites



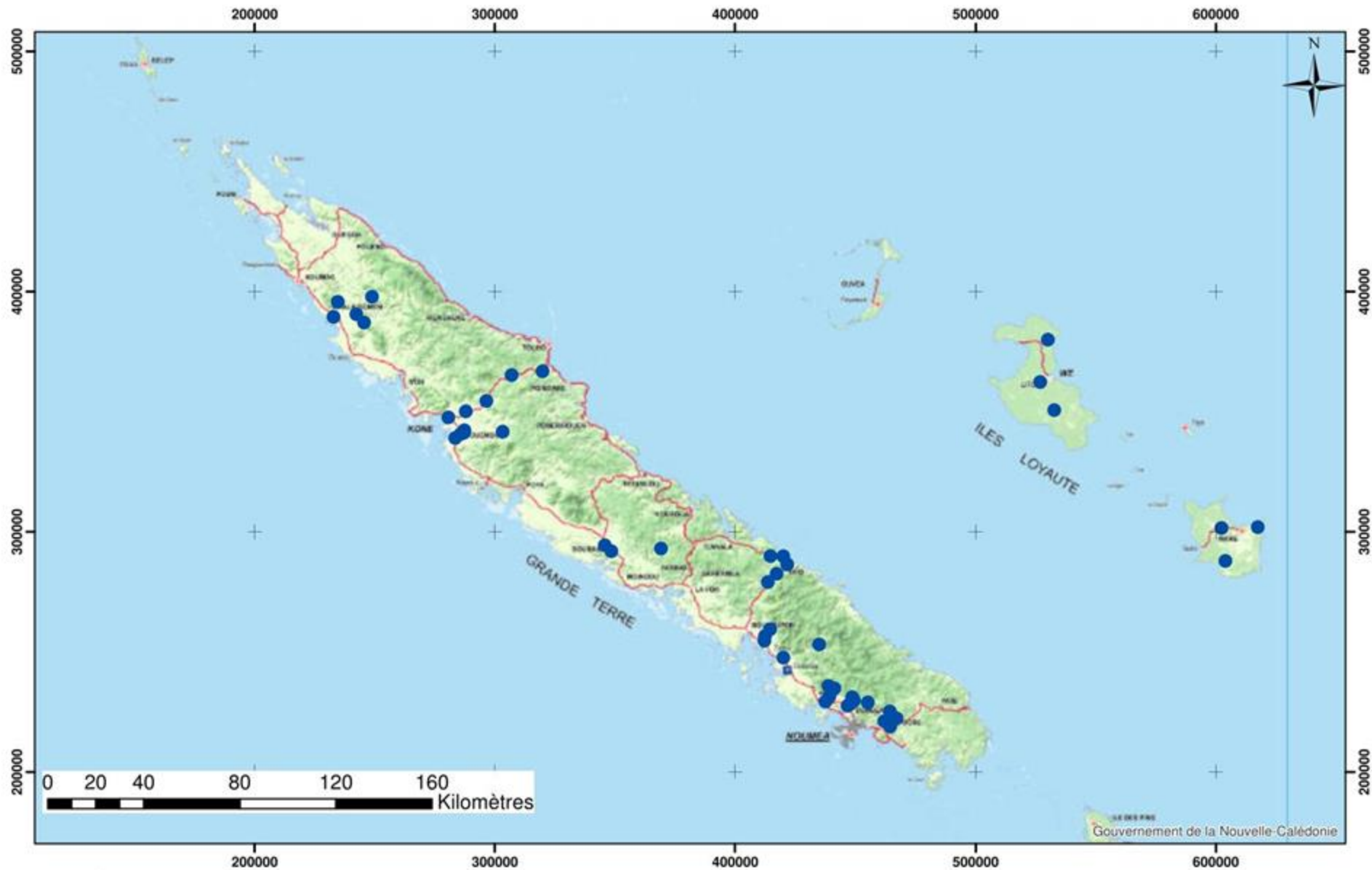
4 times a year,
between march and october



Other older sampled sites available
on request : [davar.sde-
diffusion@gouv.nc](mailto:davar.sde-diffusion@gouv.nc)

Water
quality
monitoring:

Regular
Stations
since 2018



DAVAR
Direction des Affaires
Vétérinaires, Alimentaires
et Rurales

Localisation des points de suivi qualité des eaux

Date: 04/04/2024
1:2 000 000

Physico-chemical parameters systematically analysed

- Calcium
- Chlorures
- Hydrogénocarbonates
- Magnésium
- Nitrates
- Potassium
- Sodium
- Sulfates

- Conductivité
- Matières en suspension
- Turbidité
- Demande Chimique en Oxygène (DCO)
- Dureté total (TH)
- pH
- Ammonium
- Phosphore total
- Escherichia coli

- Arsenic
- Baryum
- Bore
- Cadmium
- Chrome total
- Cuivre
- Cyanures totaux
- Carbone organique total (COT)
- Fer dissous
- Manganèse
- Mercure
- Nickel total
- Plomb
- Selenium
- Zinc

Physico-chemical parameters

Other specific parameters added depending on the watershed (mining, urban, agriculture)

Pollutants analysis 2x a year for urban and mining watersheds:

- Hydrocarbures totaux
- Hydrocarbues Aromatiques Polycycliques (HAP)
- Phénols

Physico-chemical parameters

Produits Phytopharmaceutiques à Usage Agricole (PPUA) analysis:
2x a year for agricultural watersheds:

132 active substances analysed, and in historical relation with the
importation local regulation



- Kaala-Gomen
- Pouembout
- Bourail
- Dumbéa
- Boulouparis
- Lifou
- Maré

Water quality databases

ATYA:

Water quality (physico-chemical) database of the Water Service-DAVAR

+1600 sampling points: regular, p

Oldest sampling: 1972



Hydrobio:

work in partnership with OEIL: <https://oeil.nc/fr/hydrobio>

Poissons et crustacés:

Fishes, eels,... in a GIS database + reports + [Guide des poissons d'eau douce](#)

Reference is [Atlas des poissons et crustacés de Nouvelle-Calédonie \(2002\)](#)

Réf'Eau project: water quality referential for NC

Define reference values for physico-chemical parameters of freshwater
Define a quality grid adapted to the New-Caledonian context

Project in progress with University of New-Caledonia (UNC) and technical and financial support of OFB

Complete the Quavar project of CNRT centered on ultramafic soils



GRILLE D'INTERPRETATION DES QUALITES

QUALITE PHYSICO-CHEMIQUE

Matières organiques et oxydables

Classe de qualité	Bleu	Vert	Jaune	Orange	Rouge
Oxygène dissous (mg/l)	8	6	4	3	2
Taux act. O ₂ (%)	95	75	50	30	20
DBO ₅ (mg/l O ₂)	5	4	10	20	30
DCO (mg/l O ₂)	20	30	40	60	80
SM-Cl ₂ (mg/l O ₂)	5	5	8	10	10
COO (mg/l O ₂)	5	7	8	12	12
NH ₄ ⁺ (mg/l NH ₃)	0.5	1	1.5	4	4
NH ₂ ⁺ (mg/l NH ₃)	1	2	4	4	4

Matières azotées

Classe de qualité	Bleu	Vert	Jaune	Orange	Rouge
NH ₄ ⁺ (mg/l NH ₃)	0.1	0.5	2	1	1
NH ₂ ⁺ (mg/l NH ₃)	1	2	4	10	10
NH ₃ ⁺ (mg/l NH ₃)	0.01	0.1	0.5	1	1

Nitrates

Classe de qualité	Bleu	Vert	Jaune	Orange	Rouge	Noir
NO ₃ ⁻ (mg/l NO ₃)	2	10	23	30	30	30

Réf'Eau project: water quality referential for NC

Task 1: statistical analysis of data from the ATYA database, proposal of global reference values at the NC scale, at the HER scale, depending on the geol substrate,

Task 2: **Sampling campaigns on 8 rivers** (PS 2x/month: La Foa, Nessadiou, Dumbéa, Carignan and PN 1x/month: Hienghene, Diahot, Tchamba, Tiwaka) to acquire additional data => seasonal variability, hydrological “deficit” and HER conditions => **finalized in March, laboratory analyzes in progress**



GRILLE D'INTERPRETATION DES QUALITES

QUALITE PHYSICO-CHEMIE

Matières organiques et oxydables

Classe de qualité	Bleu	Vert	Jaune	Orange	Rouge
Oxygène dissous (mg/l)	8	6	4	2	1
Taux act. O ₂ (%)	90	75	50	30	20
SBOD (mg/l O ₂)	3	4	10	25	50
DBO (mg/l O ₂)	20	30	60	80	100
SMCO (mg/l O ₂)	3	5	8	10	15
COO (mg/l O ₂)	5	7	8	12	15
AN ⁺ (mg/l NH ₄)	0,5	1	1,5	4	8
NO ₃ (mg/l N)	1	2	4	8	15

Matières azotées

Classe de qualité	Bleu	Vert	Jaune	Orange	Rouge
AN ⁺ (mg/l NH ₄)	0,5	0,5	2	3	5
NO ₃ (mg/l N)	1	2	4	10	15
NO ₂ (mg/l NO ₂)	0,05	0,1	0,5	1	1

Nitrates

Classe de qualité	Bleu	Vert	Jaune	Orange	Rouge	Noir
NO ₃ (mg/l NO ₃)	2	10	20	30	75	100

Réf'Eau project: water quality referential for NC

Task 3: Summary: recovery of the ATYA database with the data from task 2, and QUAVAR. **Proposal of reference values (range) per parameter** according to the most suitable partition

=> For each parameter: is the reference applicable to the whole NC scale or do we need to create a partition (ground water/ground water, /HER, /geology substrate,...)?



GRILLE D'INTERPRETATION DES QUALITES

QUALITE PHYSICO-CHEMIE

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Classe de qualité	Bleu	Vert	Jaune	Orange	Rouge
Oxygène dissous (mg/l)	8	6	4	2	0
Taux act. O ₂ (%)	90	75	50	25	0
SBO ₅ (mg/l O ₂)	3	4	10	25	50
DCO (mg/l O ₂)	20	30	60	80	100
SMCO (mg/l O ₂)	3	5	8	10	15
COO (mg/l O ₂)	5	7	8	10	15
NH ₄ ⁺ (mg/l NH ₄)	0,5	1	1,5	4	8
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NO ₃ (mg/l NO ₃)	0,05	0,1	0,5	1	2

Nitrates

Classe de qualité	Bleu	Vert	Jaune	Orange	Rouge	Noir
NO ₃ (mg/l NO ₃)	2	10	20	30	75	100

Thank you

