



# EARTH OBSERVATION FOR PACIFIC ISLAND COUNTRIES

## A QUESTION OF RESOLUTION

**BLUECHAM SAS**

**Head Office**

101 Promenade Roger Laroque

BP A5

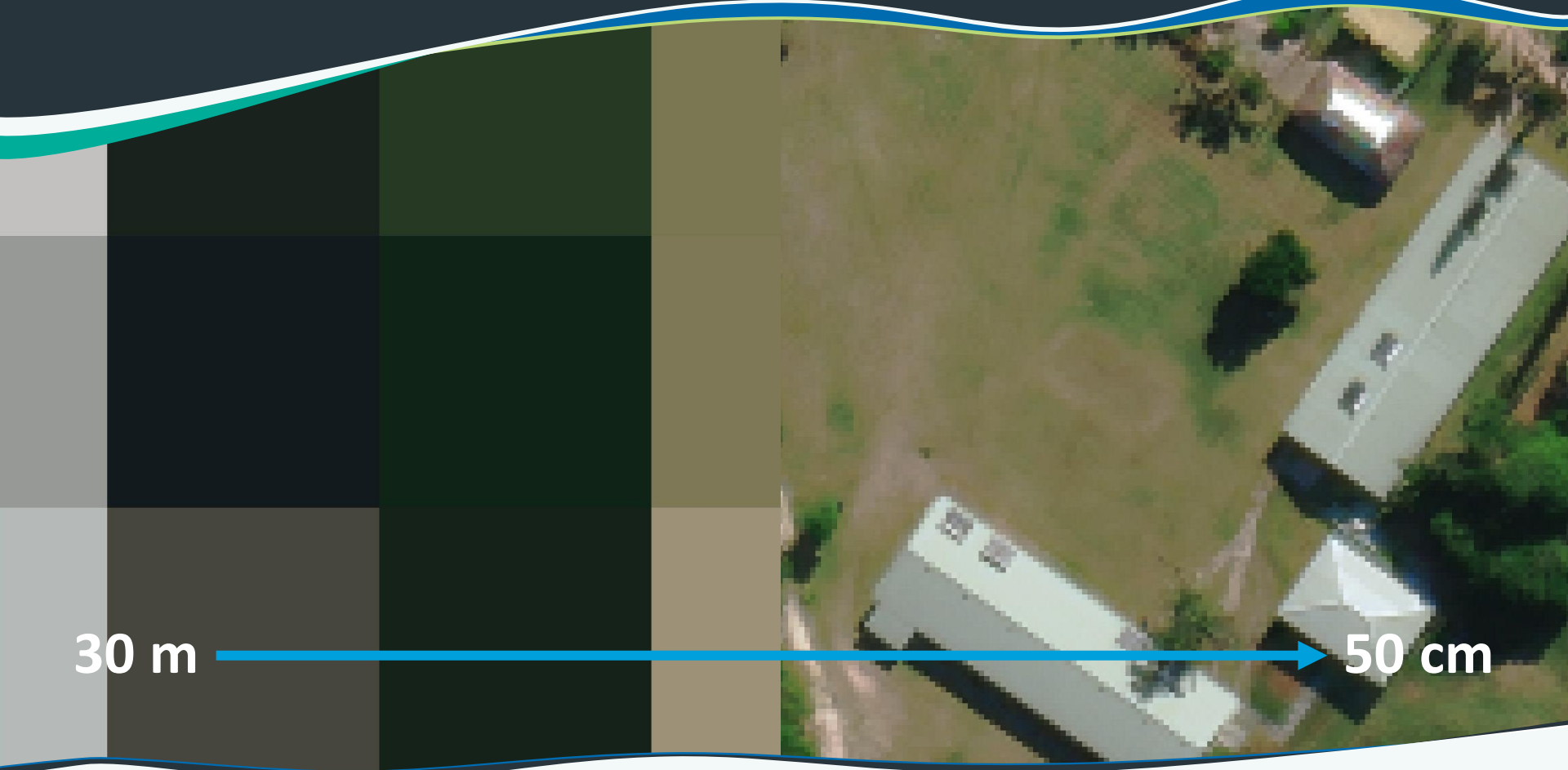
98 800 Nouméa

New Caledonia

# WHY WE'RE ALWAYS TALKING ABOUT PIXEL RESOLUTION



# THE PIXEL RESOLUTION RACE



30 m

50 cm

Do we always need  
the highest resolution ?



## Pacific Rainwater Harvest Using Spatially Enhanced Image Data

**Pacific Islands GIS and Remote Sensing User  
Conference**

**Suva, 2022**

***Darlynne Takawo, Monifa Fiu, Wolf Forstreuter***



**Dr Wolf Forstreuter**

**GCCA+**

THE GLOBAL CLIMATE CHANGE ALLIANCE PLUS INITIATIVE

SCALING UP PACIFIC ADAPTATION (SUPA)



Funded by  
the European Union



Pacific  
Community  
Communauté  
du Pacifique



**SPREP**  
Secretariat of the Pacific Regional  
Environment Programme

**USP**  
THE UNIVERSITY OF THE  
SOUTH PACIFIC



# MEASURING ROOF TOPS !



**Rooftop Surface = 564 m<sup>2</sup>**

**Approximation due to pixel resolution**

**50cm GSD  $\approx$  60 m<sup>2</sup> (10 %)**

**30cm GSD  $\approx$  20 m<sup>2</sup> (3,5 %)**

**15cm GSD  $\approx$  5 m<sup>2</sup> (<1 %)**



## 15cm High Definition

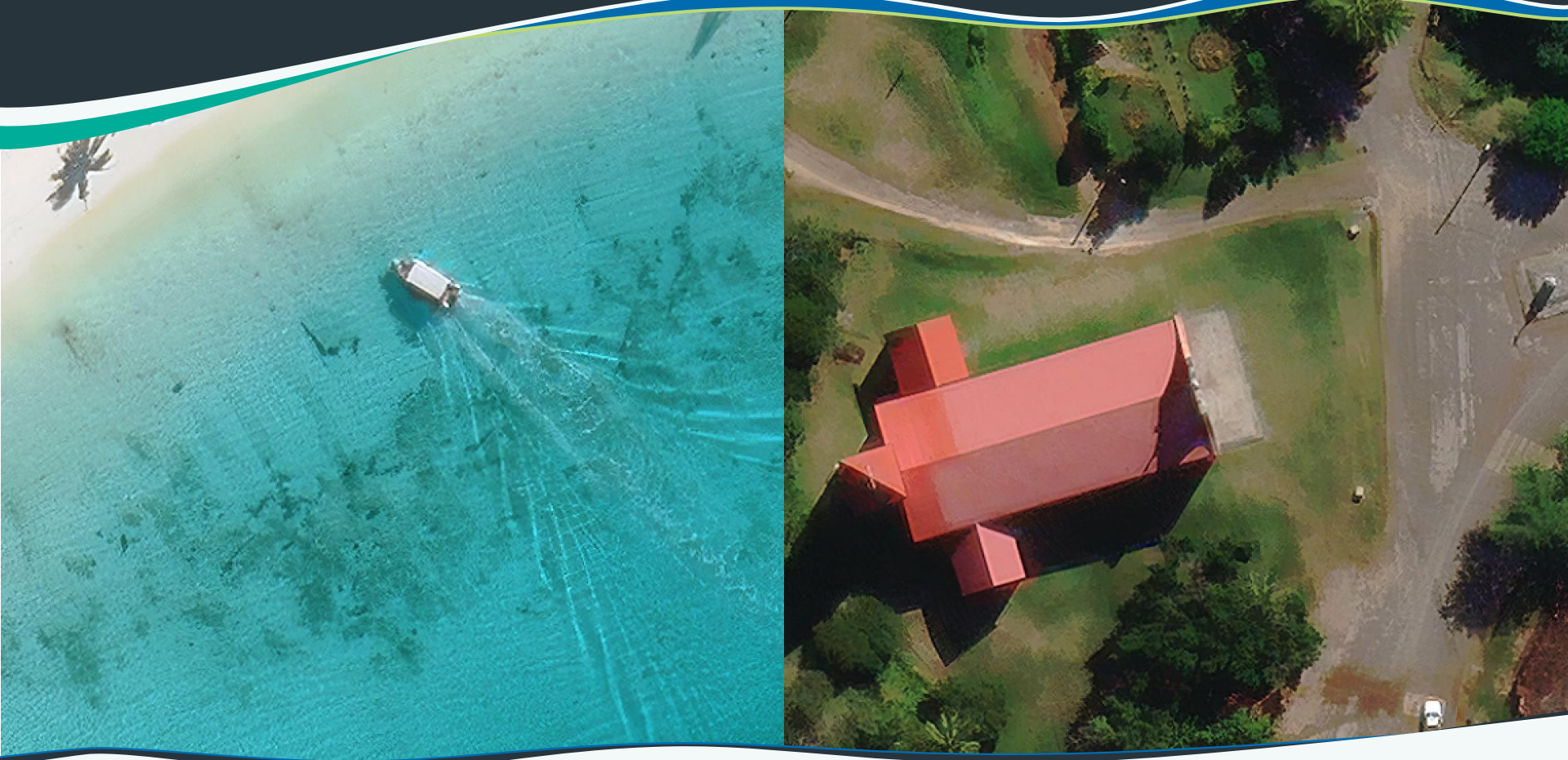
- From 30cm imagery
- IA processes
- Pacific Islands landscapes



# MAXAR



# 15CM HIGH DEFINITION





# HIGH DEFINITION ON SENTINEL-2: OVERWATCH

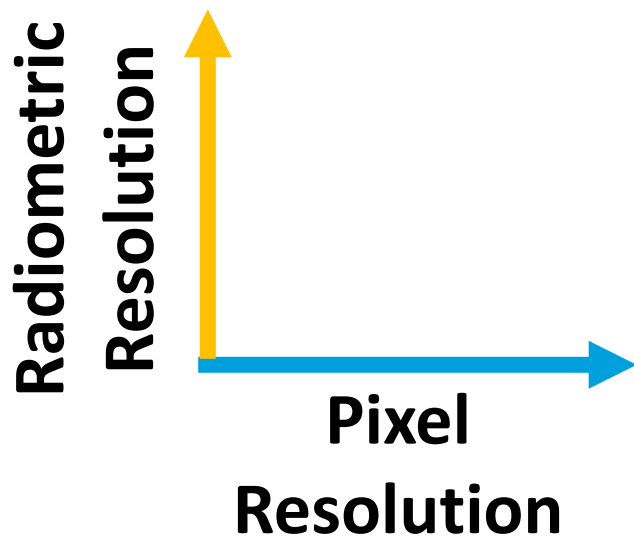


## High Definition on Sentinel-2

- To 10m to 2,5m
- IA processes
- Pacific Islands landscape



# RADIOMETRIC RESOLUTION: THE SECOND RESOLUTION DIMENSION



# THE NUMBER OF BANDS

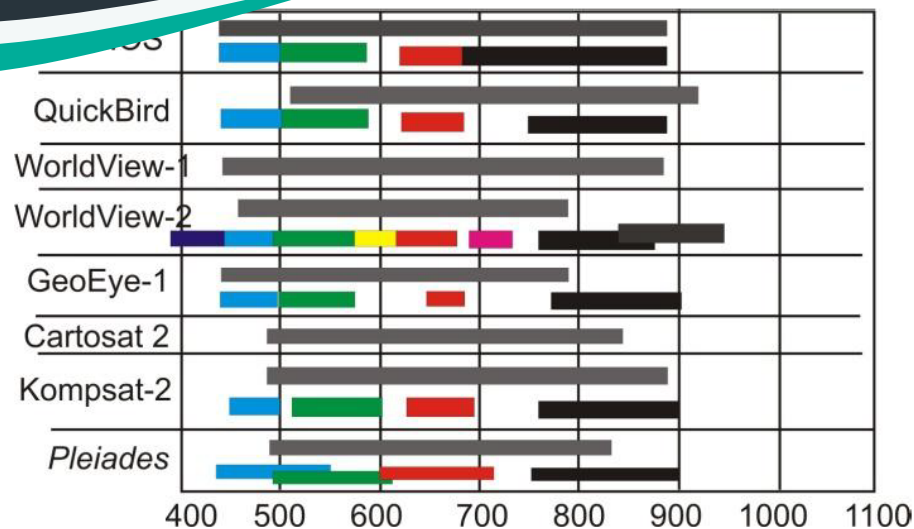
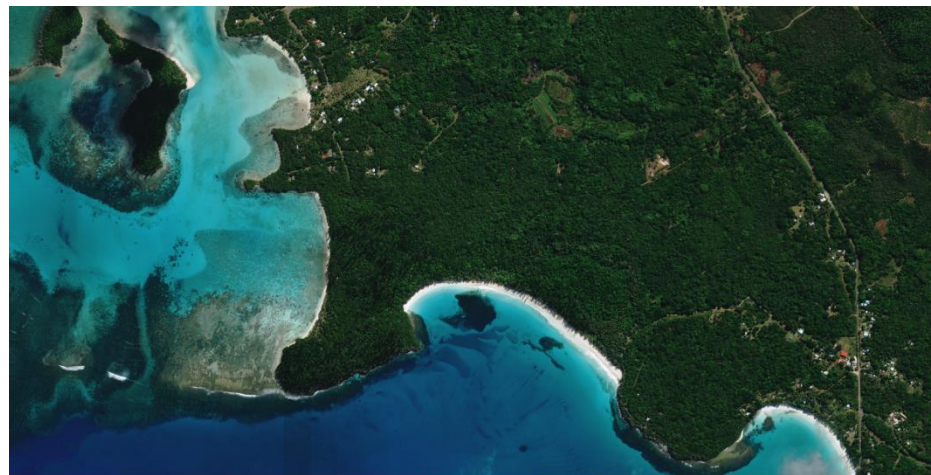


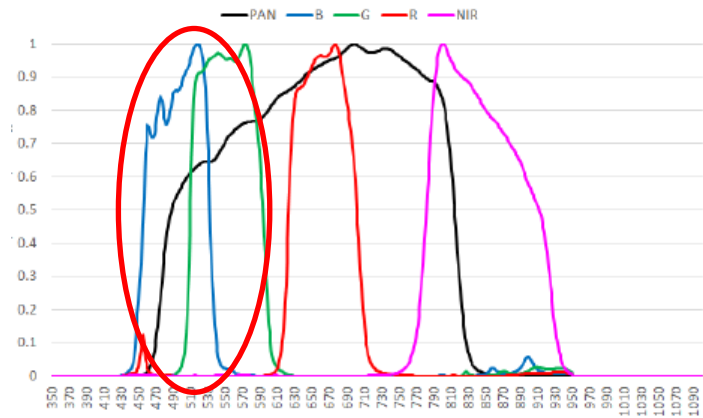
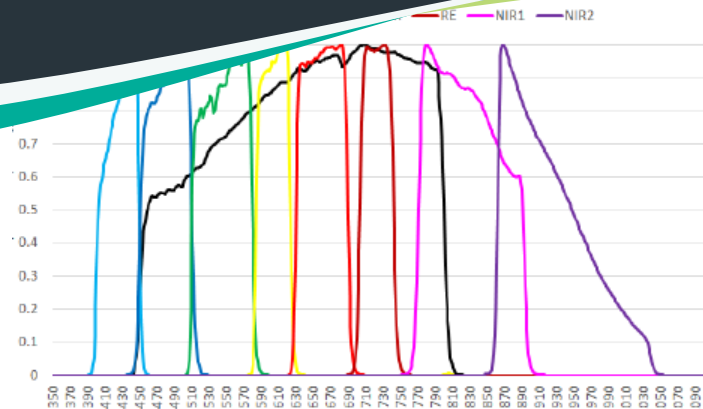
Figure 11. Spectral range of panchromatic channel (upper line in grey) and color channels



*K. Jacobsen, Characteristics of very high resolution optical satellites for topographic mapping, International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences, Volume XXXVIII-4/W19, 2011 ISPRS Hannover 2011 Workshop, 14-17 June 2011, Hannover, Germany*

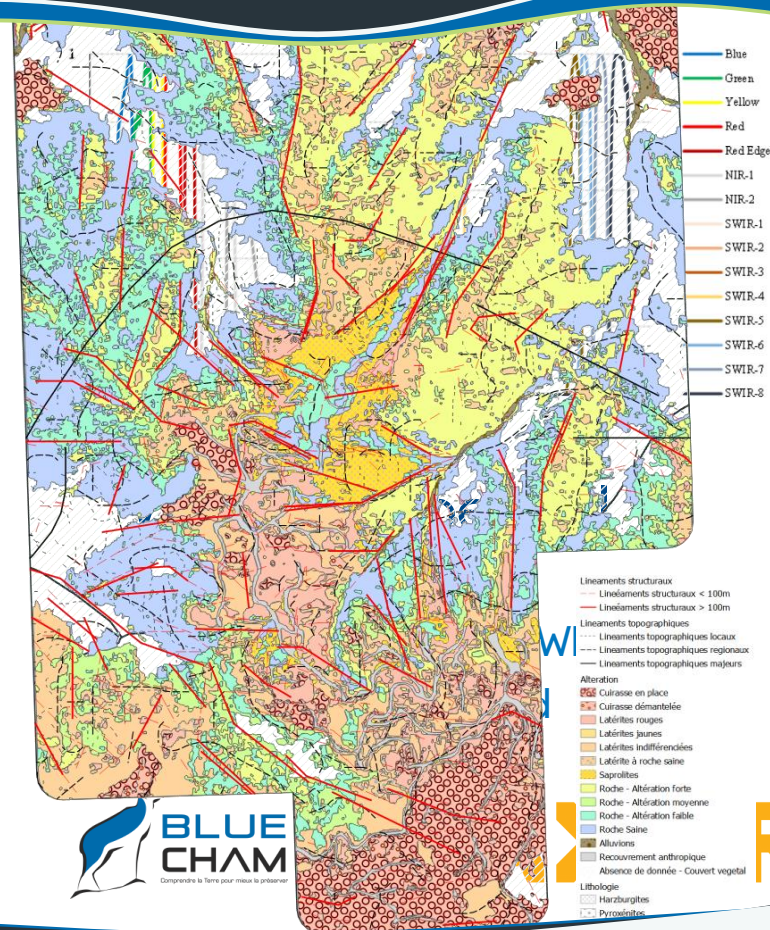
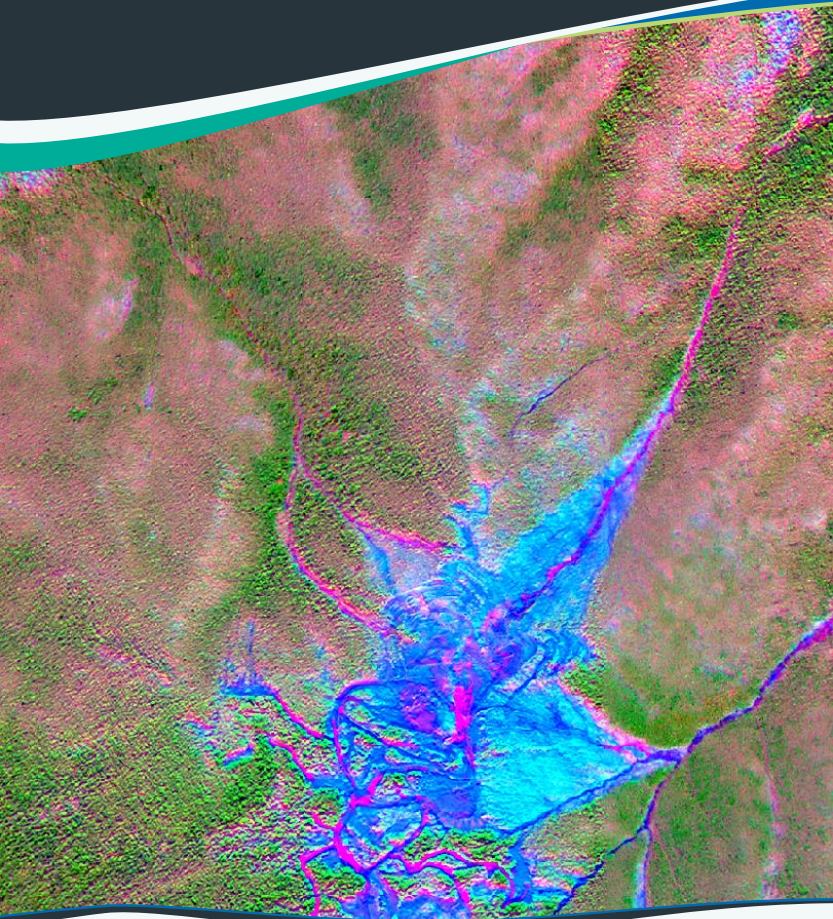


# BAND SEPARABILITY



*Vivone et al. 2021, A Benchmarking Protocol for Pansharpening: Dataset, Pre-processing, and Quality Assessment, IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*

# EXPERT ANALYSIS AND AUTOMATION





# FROM SUPERSPECTRAL TO HYPERSPECTRAL

# pixxel



## HYPERSPECTRAL

Hyperspectral imagery (HSI) consists of hundreds of specific bands of different segments of blue, green, red, and even going beyond the visible spectrum into infrared

WIDE

**40KM SWATH VNIR | 10KM  
SWATH SWIR**

Requires fewer satellites for larger coverage

RANGE OF

**400–2500nm**

covers all major use cases

**250 BANDS**

ensure we don't miss any  
minute details

UNPRECEDENTED

**5M RESOLUTION**

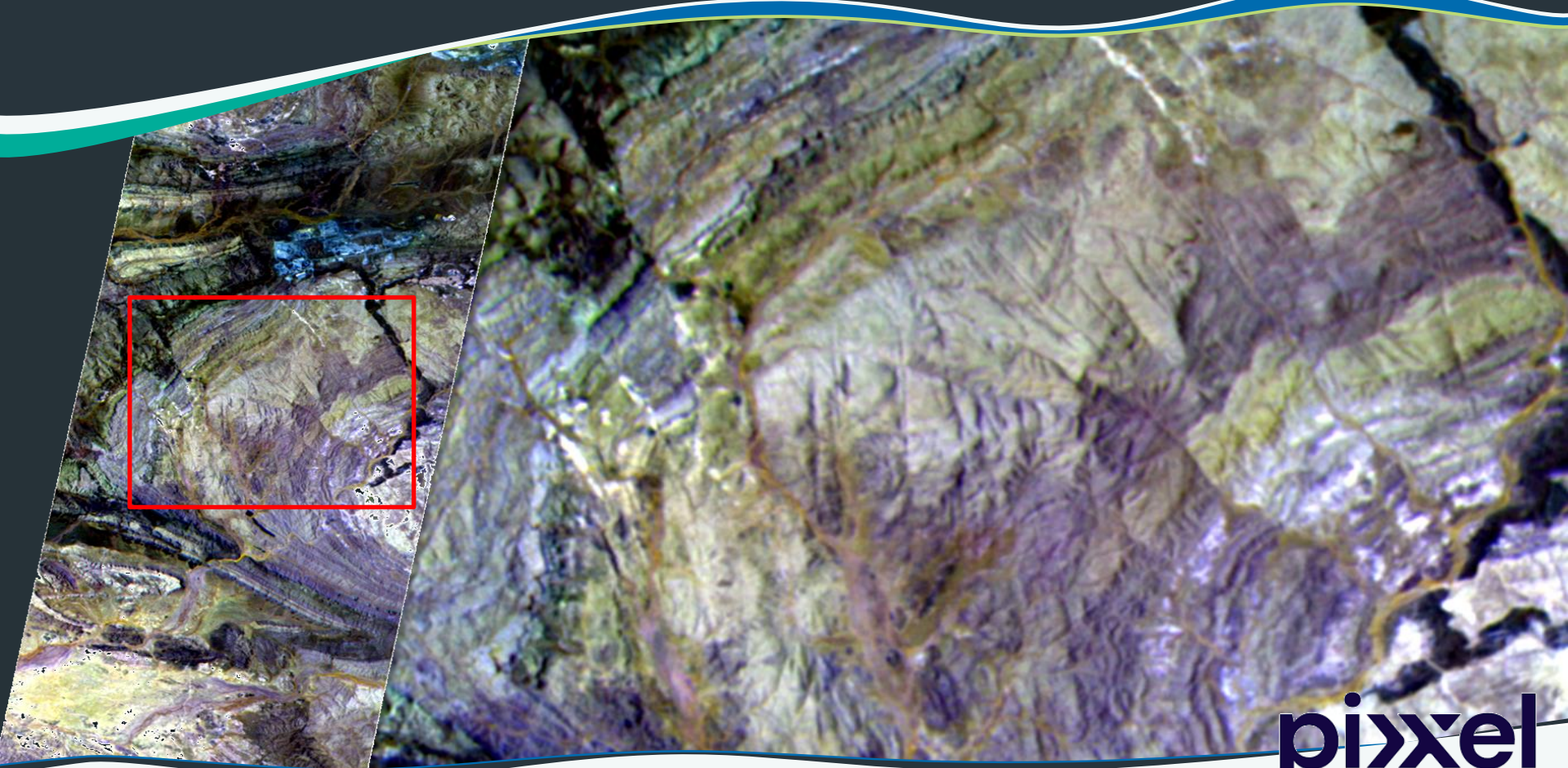
for hyperspectral

**THE BEST  
HYPERSPECTRAL  
CAMERA EVER BUILT**





# FROM SUPERSPECTRAL TO HYPERSPECTRAL

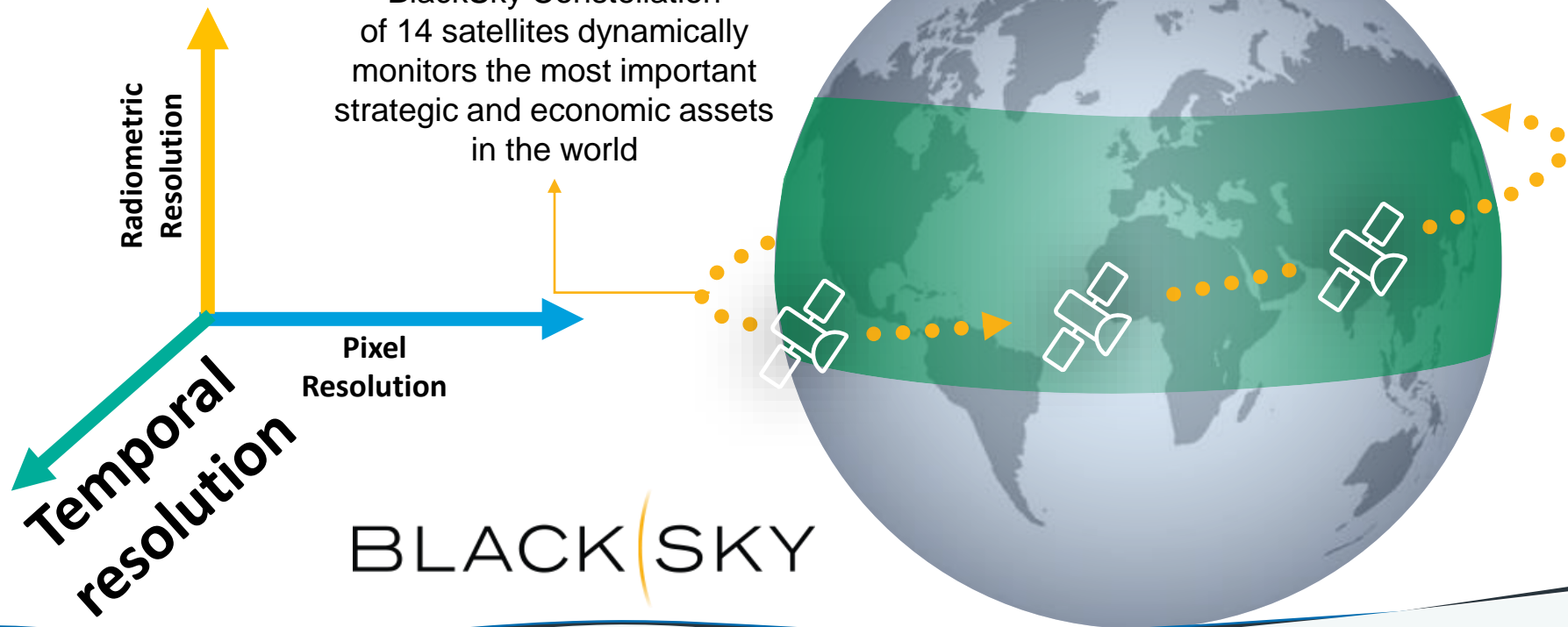


**pixxel**

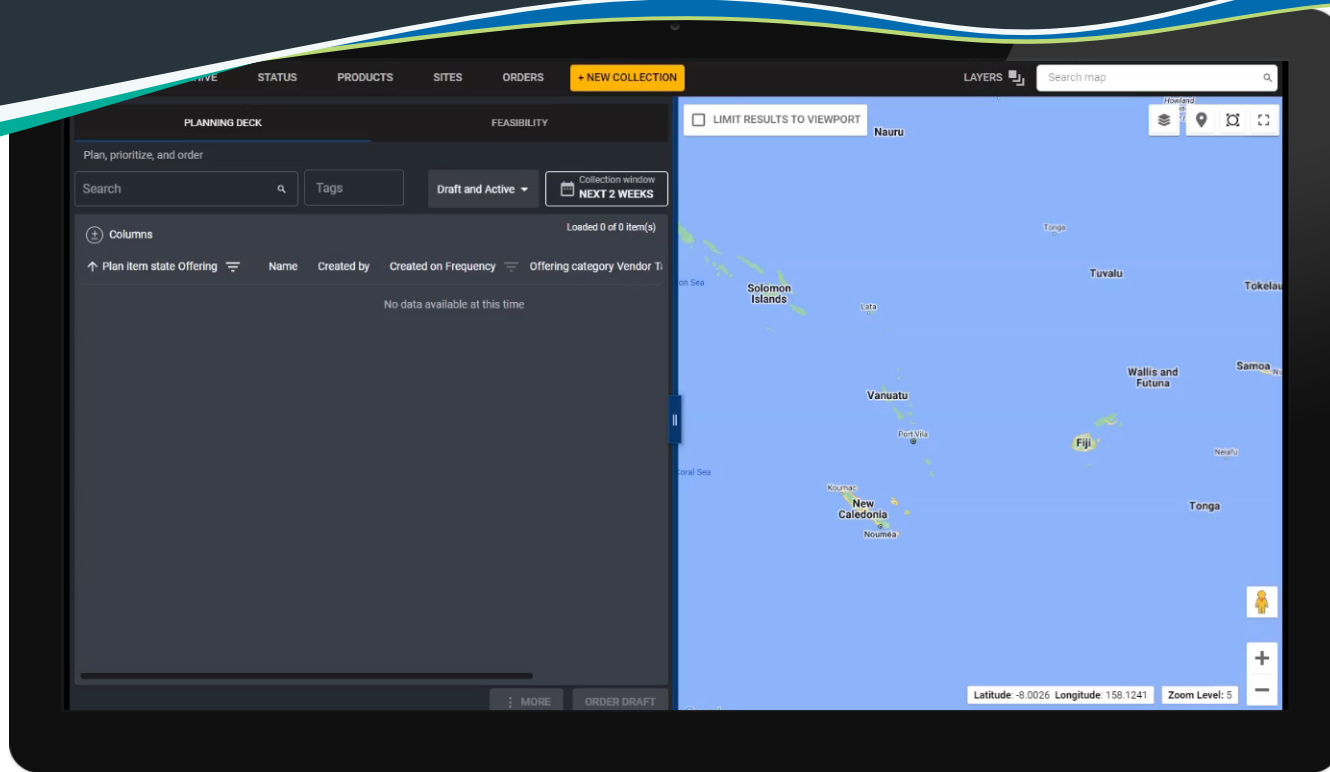
# THE THIRD DIMENSION: TEMPORAL RESOLUTION

## DYNAMIC MONITORING

BlackSky Constellation  
of 14 satellites dynamically  
monitors the most important  
strategic and economic assets  
in the world



# HAVING CONTROL ON EARTH OBSERVATION CAPABILITIES



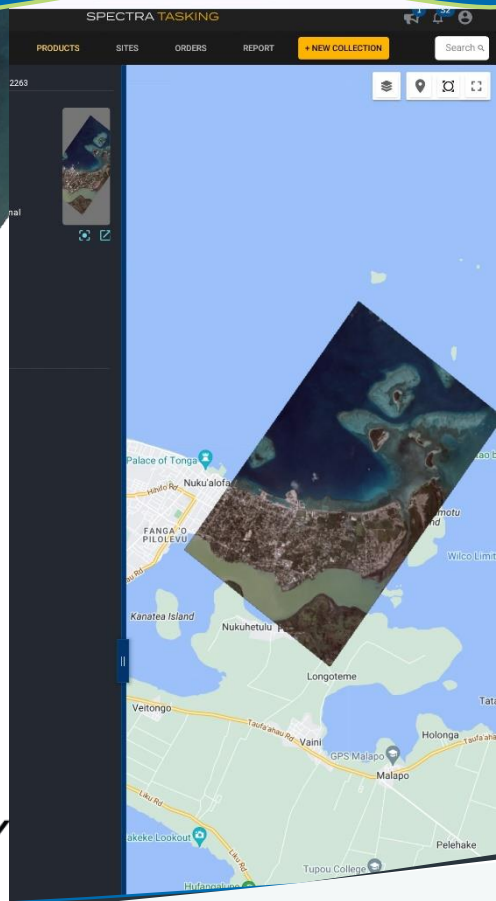
BLACK|SKY



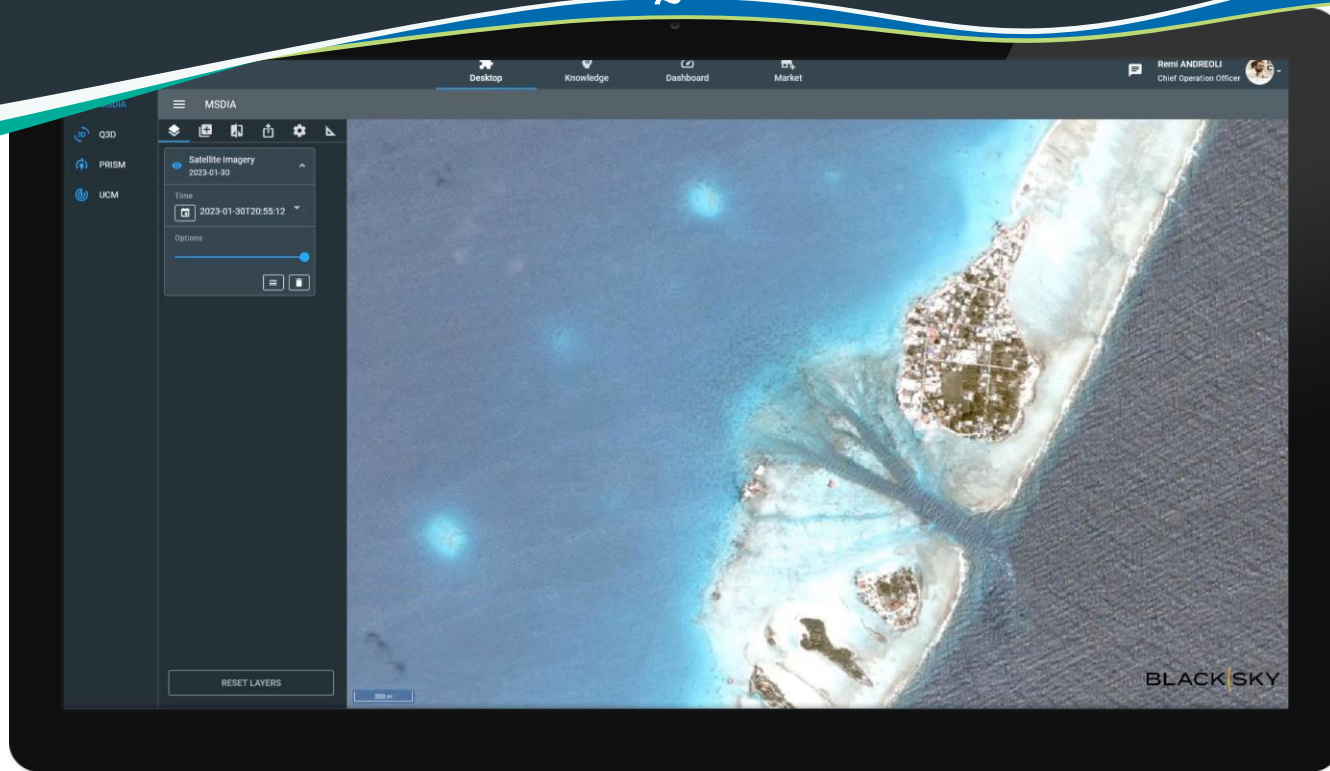
# HAVING CONTROL ON EARTH OBSERVATION CAPABILITIES



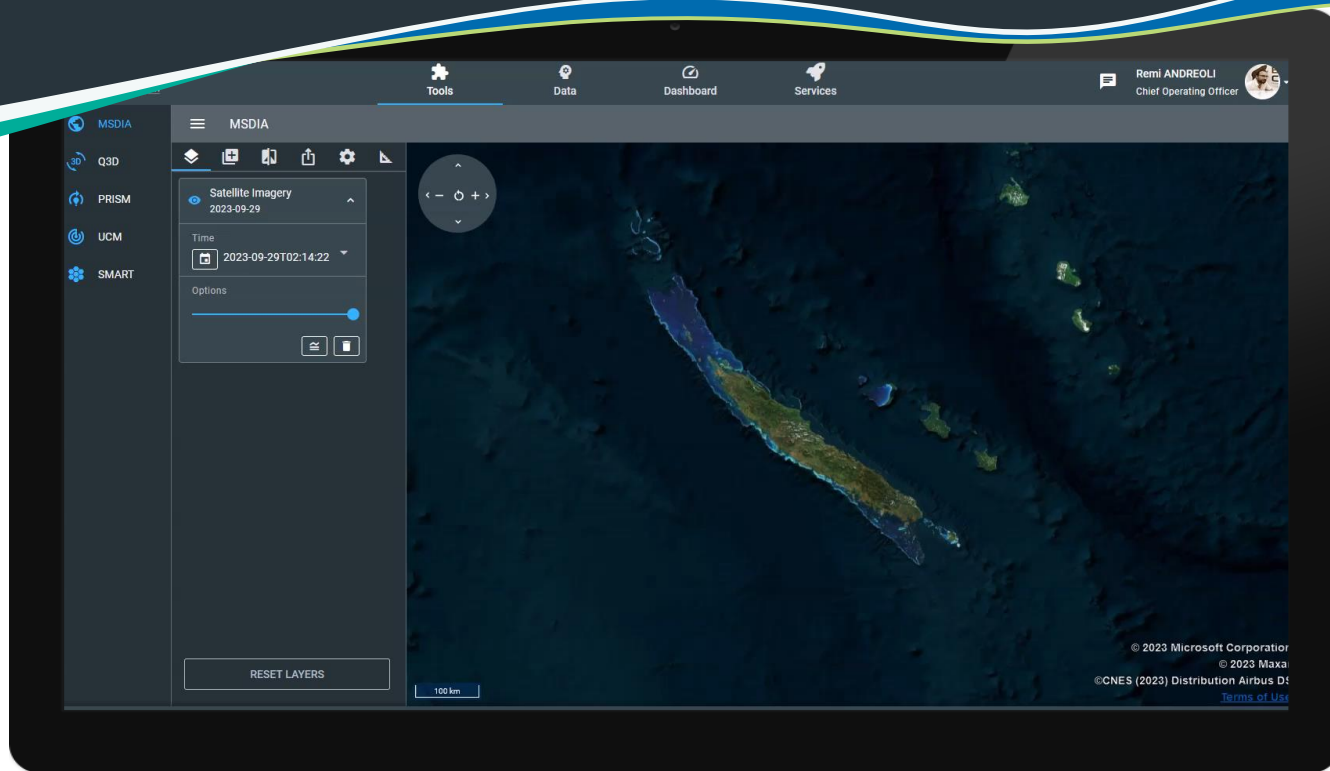
BLACK SKY



# VERY HIGH FREQUENCY FOR ASSETS MONITORING



BLACK SKY + ehnelo  
Build your own solutions





# FROM SUNRISE TO SUNSET AND NIGHT

BLACK|SKY

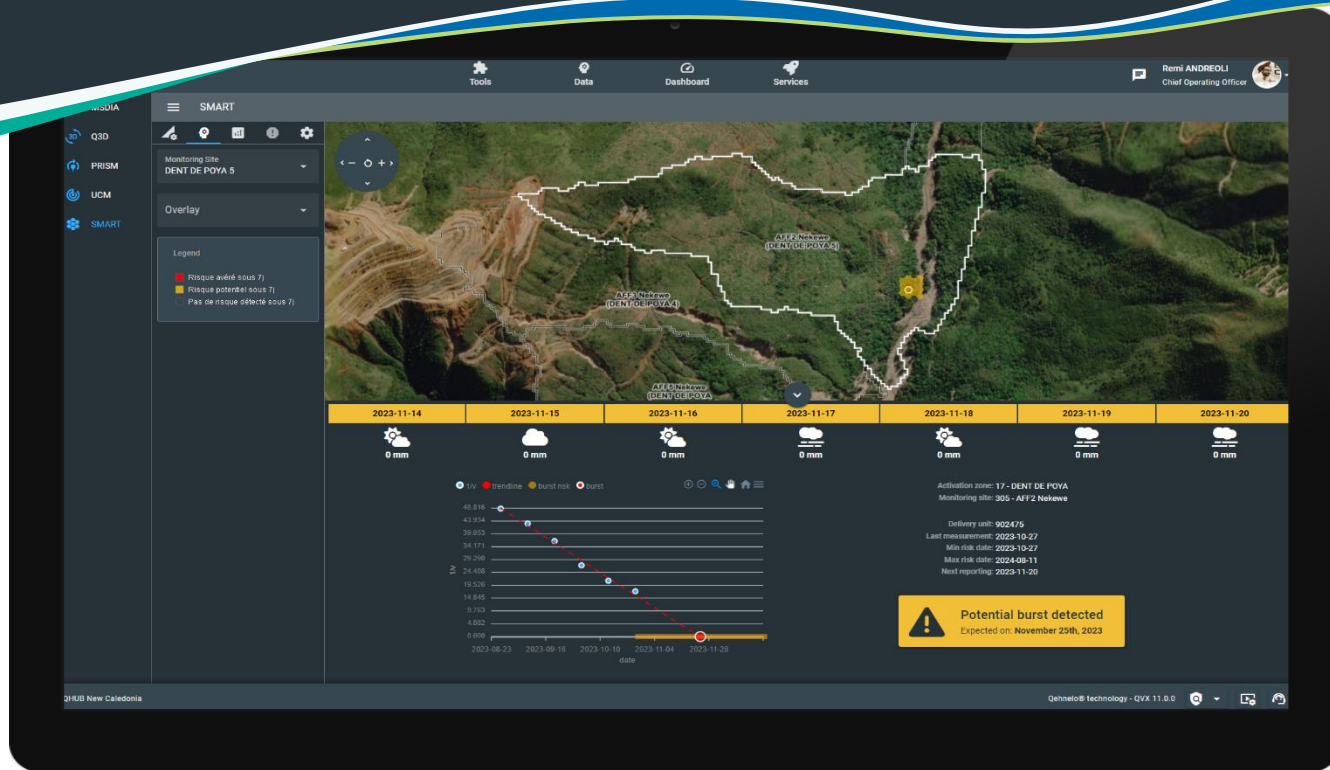
BLACK|SKY  
Be The First To Know

**Port Moresby, Papua New Guinea**

BlackSky Constellation

09 Aug 2022 11:12 UTC | 21:12 Local

# QEHNELO®: ONE POINT OF ACCESS, MANY SOLUTIONS



## About BLUECHAM SAS

- Since 2007, proud Pacific Technology Company
- > 10 Qehnelo Digital Plateformes worldwide
- > 1TB processed each day to predict risks and monitor our changing environment in the context of climate change

## If you need more information



Qehnelo Plateforme in your country

### MAXAR

Proud Reseller

### BLACK SKY

Proud Reseller



Copernicus Relay



Comprendre la Terre pour mieux la préserver

<https://linkedin.com/company/bluecham>