

COP Integrated Workshop

The critical role of cloud storage for EO data management

Avin Mansookram – 06 June 2024



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Agenda

01 — 02 — 03 — 04 — 05

EO Data

EO Data
Challenges

EO Data
Management
on AWS

AWS and EO
Workflow
Integration

AWS
Innovation for
EO Data

06 — 07 — 08 — 09

Future
Trends in EO

Use Cases

Conclusion

Questions

01 EO Data



Definition and Importance of EO Data

What is it and why is it important?



Sources and Characteristics of EO Data

Satellites, Aerial, Ground/Marine based, Complexity



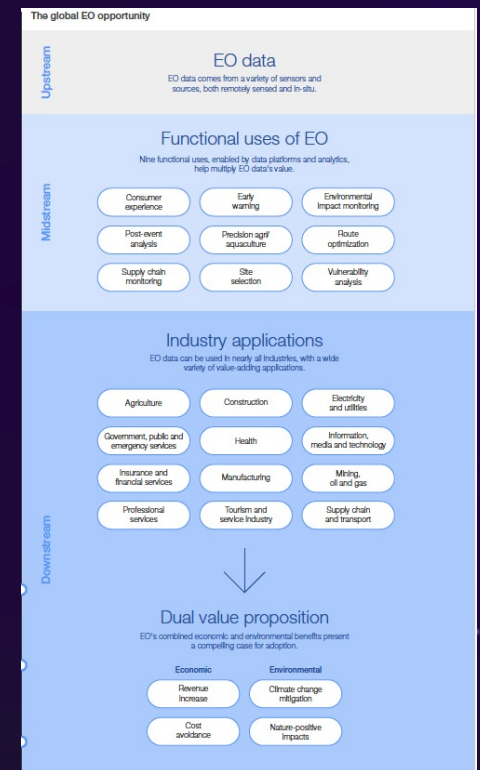
AWS tools for working with EO Data

Amazon S3, AWS GroundStation, AWS Public Datasets



Benefits of Managing EO Data on AWS

Security, Cost-Effective, Scalability, Global Reach



02 EO Data Challenges



Volume, Velocity, Variety, Veracity

Scale, Management, RT/Streaming, Compatibility, Integrity, Accuracy



Security and Privacy

Compliance, Sensitivity



Cost Management

Storage, Processing costs



Accessibility, Sharing and Integration

Collaboration and Silos



Environmental and Operating Conditions

Remote, Maintain, Legacy, Adoption

03 EO Data on AWS



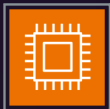
Storage Solutions with Transfer and Ingestion

Amazon S3, Amazon Glacier, AWS Storage Gateway, AWS DataSync, AWS Direct Connect, AWS Snow, Amazon Kinesis, AWS Lake Formation, Amazon Athena



Security and Compliance

AWS Shield, AWS IAM, Amazon KMS, AWS Firewall Manager, AWS CloudHSM



Computing and Processing

Amazon EC2, AWS Lambda, AWS Batch, Amazon ECS



Databases and Data Management

Amazon RDS, Amazon DynamoDB, Amazon Redshift



Geospatial and Location services

Amazon Location Services, AWS IoT Core, AWS IoT Greengrass

04 EO Workflows on AWS



Workflow Automation and Orchestration

Amazon EventBridge, AWS Step Functions



Data Ingestion, Processing and Analysis

AWS GroundStation, AWS IoT Core, Amazon ECS, AWS Lambda, AWS Batch



Data Visualizations and Distribution

Amazon QuickSight, AWS AppSync



Advanced Data Analytics and Machine Learning

Amazon Kinesis, Amazon SageMaker

05 AWS Innovation for EO



IoT / Edge Computing

AWS IoT Greengrass, AWS IoT Analytics, AWS Wavelength



Machine Learning and AI

Amazon SageMaker, Amazon Rekognition



Quantum Computing

Amazon Braket



Blockchain

Amazon Managed Blockchain



Hybrid Cloud

AWS Outposts



AR / VR

Amazon Sumerian

06 Future Trends in EO



Increased use of AI / GPTs



More Satellite Constellations



More Security and Data Sovereignty



Data Sharing Frameworks



Quantum Computing Integration



Regulatory and Ethical implications

07 Use Cases



Disaster Response and Management

[\(https://aws.amazon.com/blogs/publicsector/tag/aws-disaster-response-program/\)](https://aws.amazon.com/blogs/publicsector/tag/aws-disaster-response-program/)

Improved speed and accuracy of disaster response times, enabling effective deployment of emergency services and resource allocation.



Wildfire Monitoring

<https://afis.co.za/map/>

Provided AFIS with automated fire information within 20min of satellite overpass (Cape Town). Initially 30mins to 3hours.



Environmental Monitoring

[\(https://aws.amazon.com/solutions/case-studies/ocean-conservancy/\)](https://aws.amazon.com/solutions/case-studies/ocean-conservancy/)

Enhanced ability to monitor and respond to environmental threats in real-time, aiding in conservation efforts and policy-making.



Urban Planning

[\(https://aws.amazon.com/blogs/publicsector/tag/smart-cities/\)](https://aws.amazon.com/blogs/publicsector/tag/smart-cities/)

Enabled data-driven decision-making for urban development, improving city planning, traffic management, and public safety measures.

08 Conclusion

- ✓ Challenges, Solutions and Innovations
- ✓ AWS enhancing EO Data Management
- ✓ AWS Adoption
- ✓ Future Outlook
- ✓ Closing Remarks

09 Questions





About Us



Company

Our company is a global AWS partner firm specialising in the **Aerospace and Satellite** sector.

We develop and use **Machine Learning** models to analyse **satellite imagery**.

We provide integration, insights, intelligence and AI driven recommendations.



History

- 2010 – Program Assurance
- 2012 – SA National IT Audit
- 2013 – Technology Consulting
- 2016 – USA expansion
- 2018 – AWS Partnership
- 2020 – Media and Distribution
- 2022 – Aerospace and Satellite



Director

BScEng (Electrical)
BComm (Financial Management)

ISU Space Studies Program

AWS Cloud Practitioner
AWS Solutions Architect
SAP on AWS
AWS Machine Learning (current)

CISA, CGEIT, Cobit 5 Assessor

I appreciate your time

Avin Mansookram

MFT Executive Advisory Services

avin@mftza.com

+27 (76) 1948 542

<https://mftza.com>



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