



GWFF

GEOSPATIAL WORLD FORUM

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The background of the slide is a satellite-style map of Malaysia and surrounding regions, overlaid with a complex network of glowing yellow and orange lines representing geospatial data or connectivity. The lines are most prominent in the top and bottom corners.

JUPEM'S RESPONSE TO NATURAL DISASTER THROUGH COLLABORATIVE GEOSPATIAL SUPPORT

Geospatial World Forum 13 - 16 May 2024

BRIGEDIER GENERAL DATO' PAHLAWAN SR DR MOHD ZAMBRI MOHAMAD RABAB
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Department of Survey and Mapping Malaysia



PRESENTATION OUTLINE

01. INTRODUCTION

02. JUPEM ROLES IN DISASTER MANAGEMENT

03. JUPEM'S PRODUCT THAT SUPPORT
DISASTER MANAGEMENT

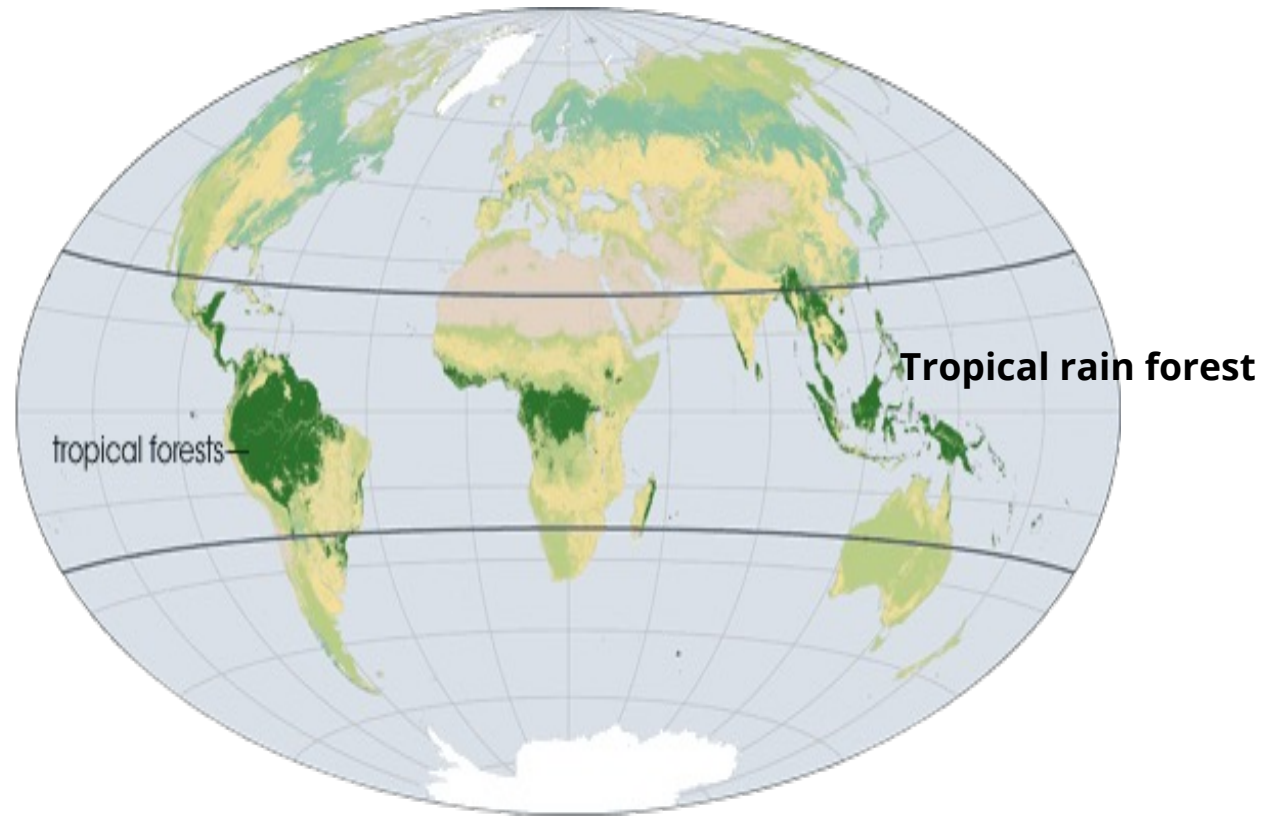
04. IMPACT TO PUBLIC AND COUNTRY

05. CONCLUSION

1.0 INTRODUCTION

1

Location of Malaysia in line of equator



Heavy rains, flood, landslides, water surges etc

2

Frequent and unexpected natural disaster



Destruction of property, loss of financial, injury etc

2.0 JUPEM ROLES IN DISASTER MANAGEMENT



JUPEM assists National Security Council (MKN) & National Disaster Management Agency (NADMA)



Base Map and Geomatic Surveying



Subject Matter Expert (SME)

Defence Geospatial Information Management (DGIM) Enterprise Platform

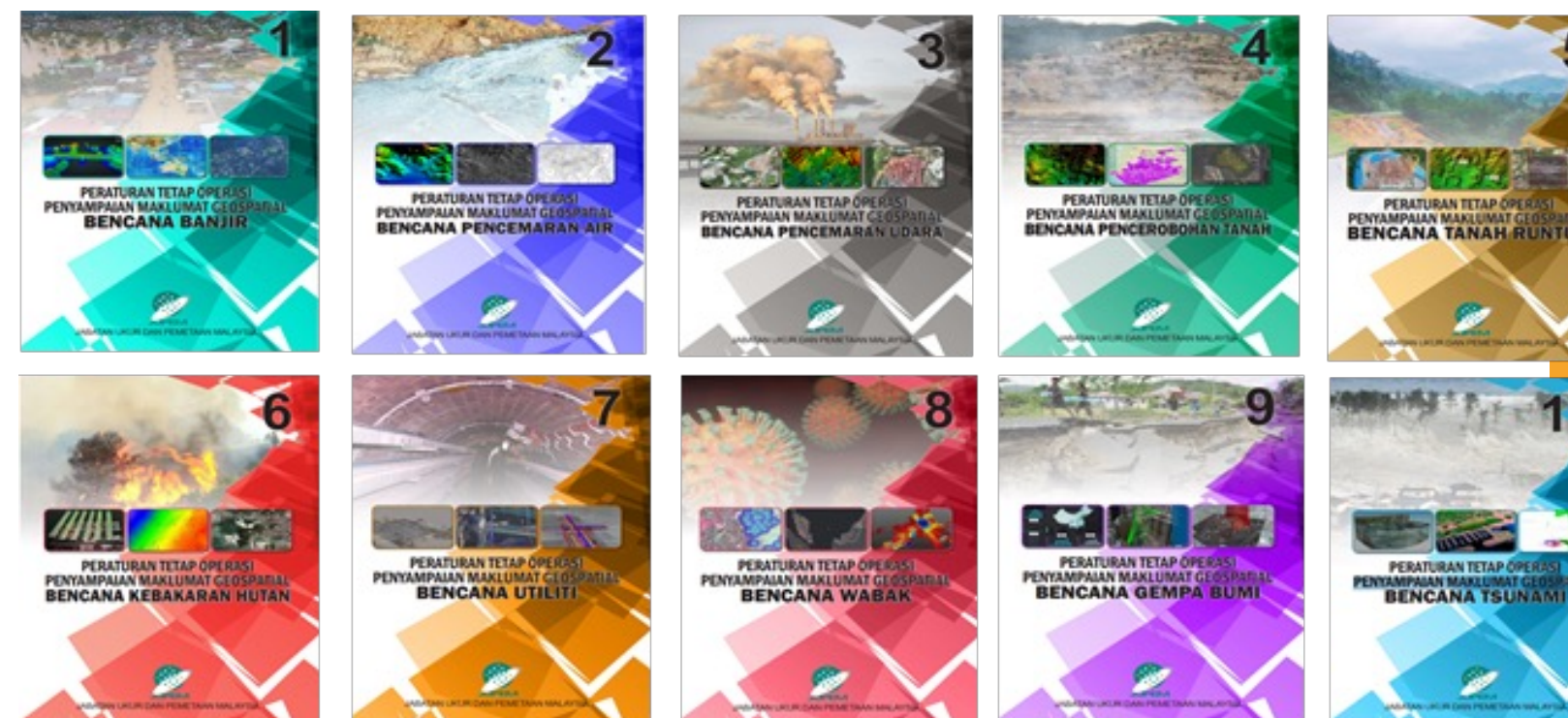
DIRECTOR GENERAL OF SURVEY AND MAPPING MALAYSIA



- Surveyor General of Peninsular Malaysia
- Director of National Mapping Malaysia
- Honorary Director of Military Survey Malaysian Armed Forces

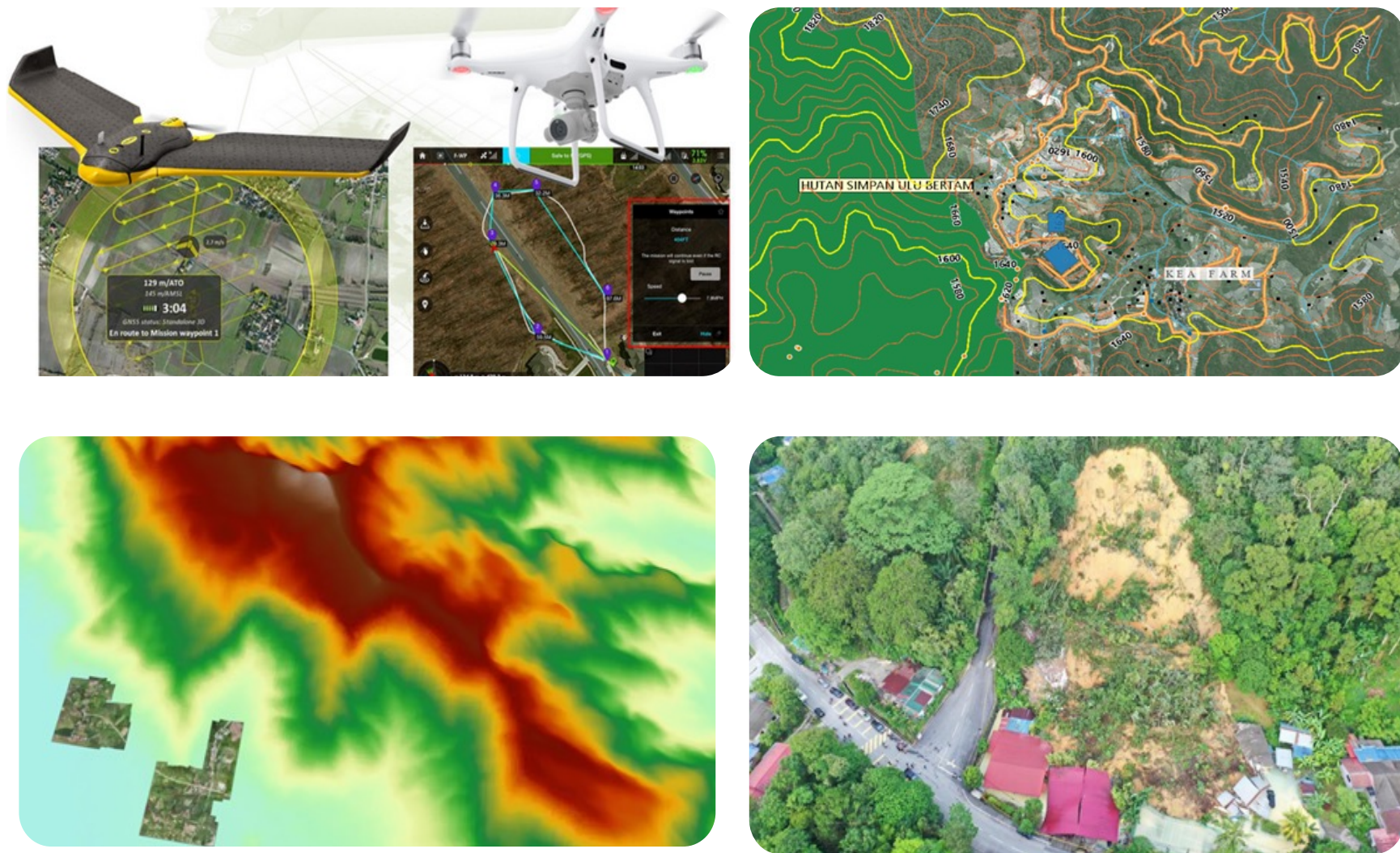
22.09.2020:

JUPEM launched PTO (SOP) involving 10 types of disaster

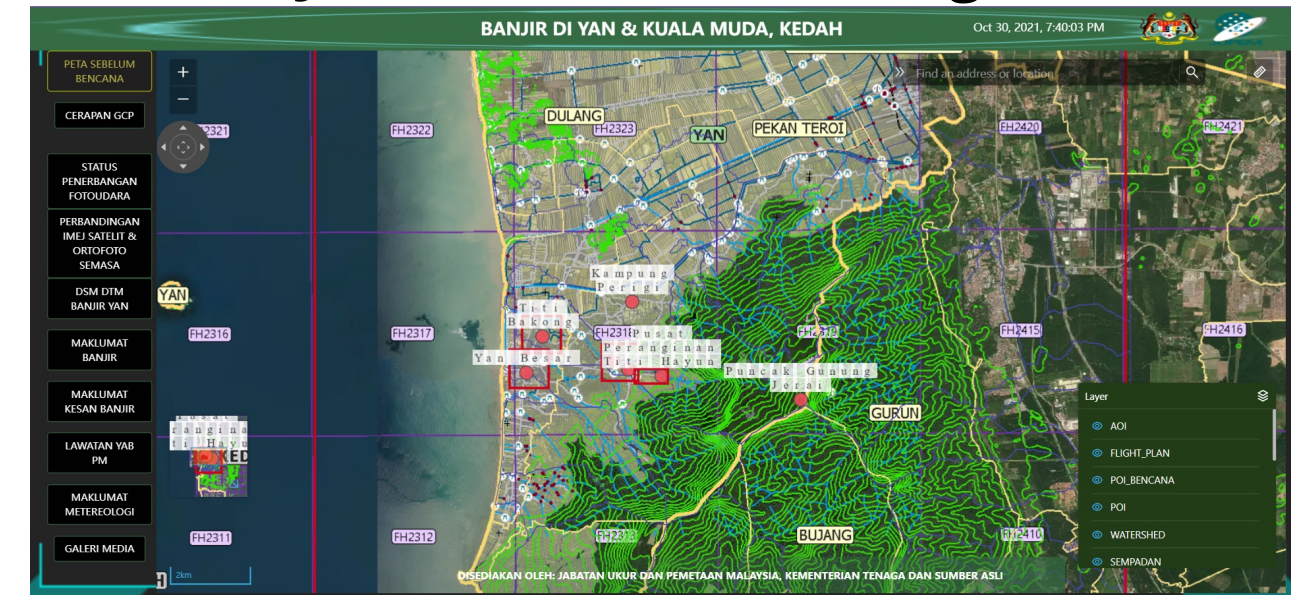


Peraturan Tetap Operasi (PTO) Documentation

1 GEOSPATIAL PRODUCTS - Base Map and Geomatic Surveying

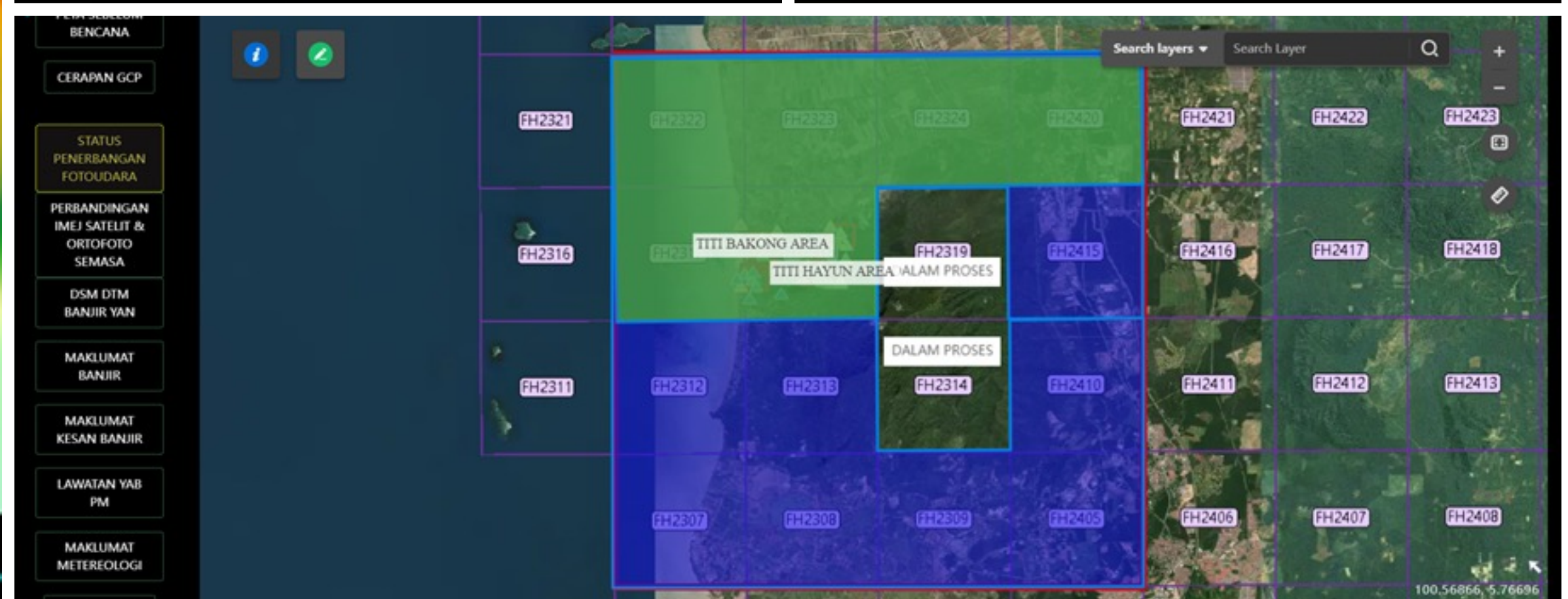
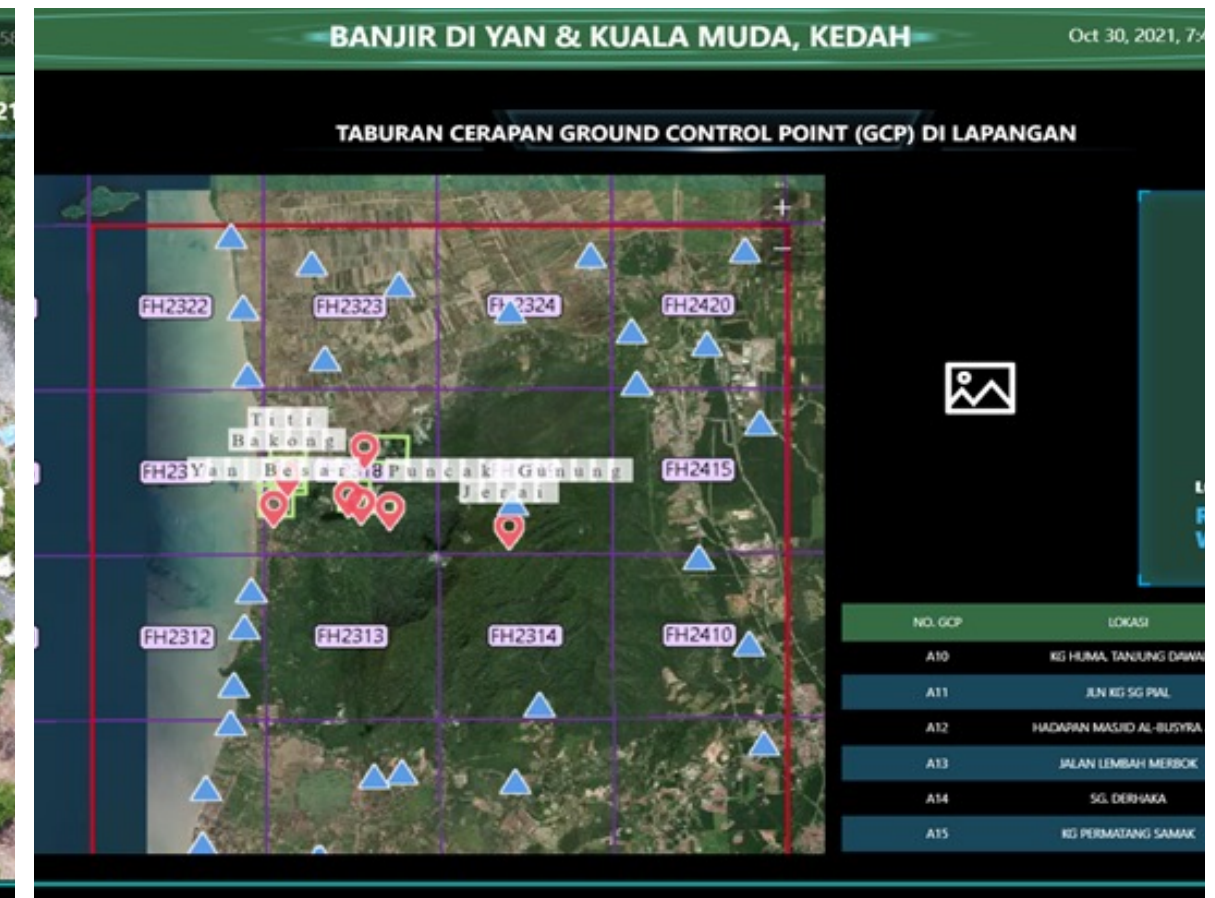
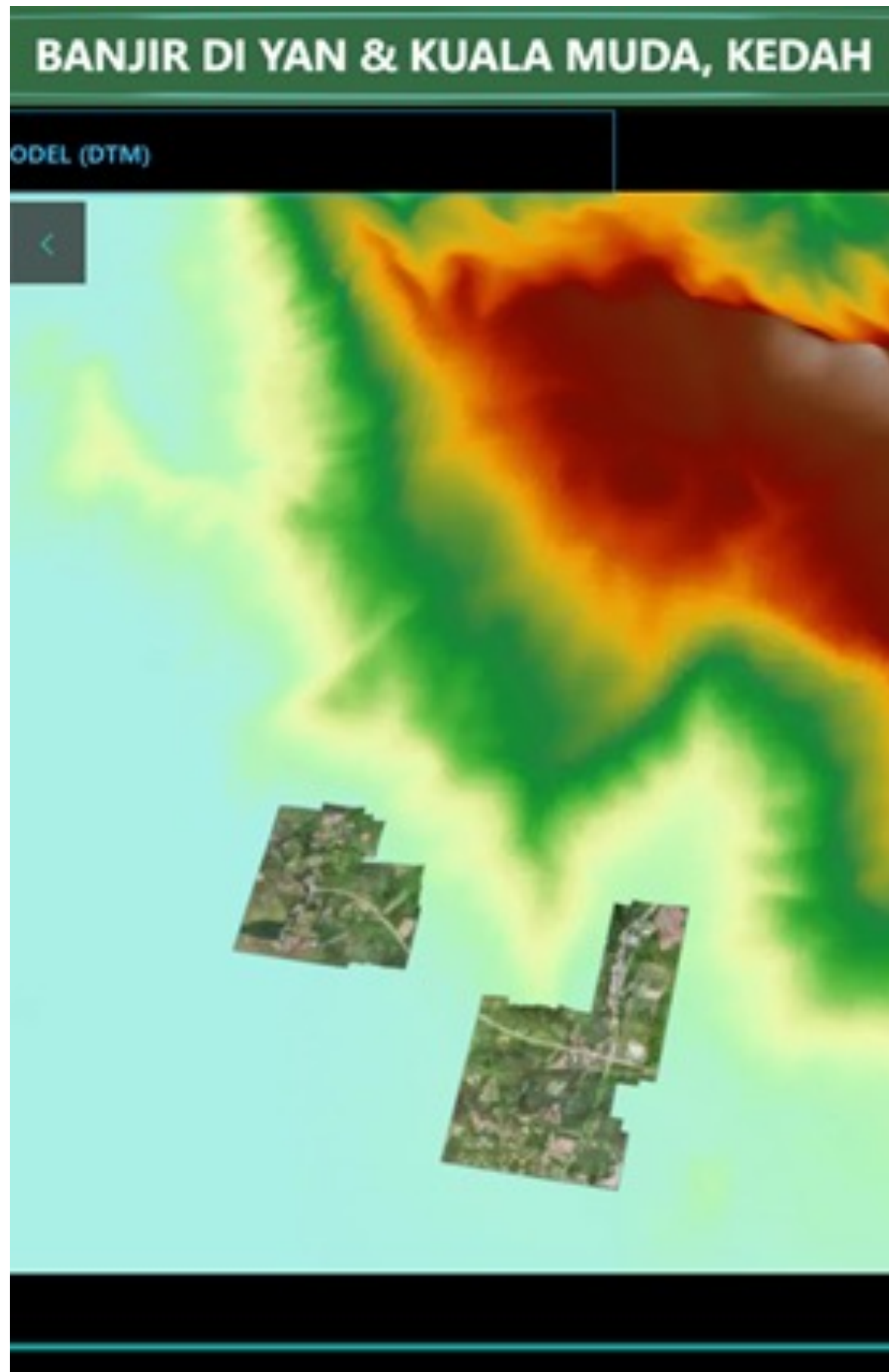


MYGEOSERVE System – Integrate Information within JUPEM and Data Management



Light Detection and Ranging (LiDAR), Unmanned Aerial Vehicle (UAV), Utility Data and Cadastre Database which can be used to map the disaster area

3.0 GEOSPATIAL SUPPORT IN DISASTER MANAGEMENT



2 GEOSPATIAL EXPERTISE



Subject Matter Expert (SME)



Teamwork with technical agencies
(JMG, JPSM, Local Authorities)

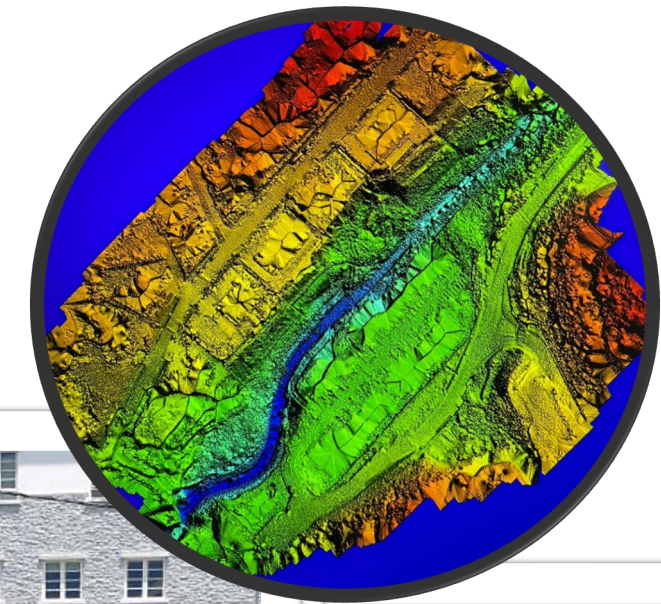
Imagery Acquisition



UAV (Optical dan LiDAR)

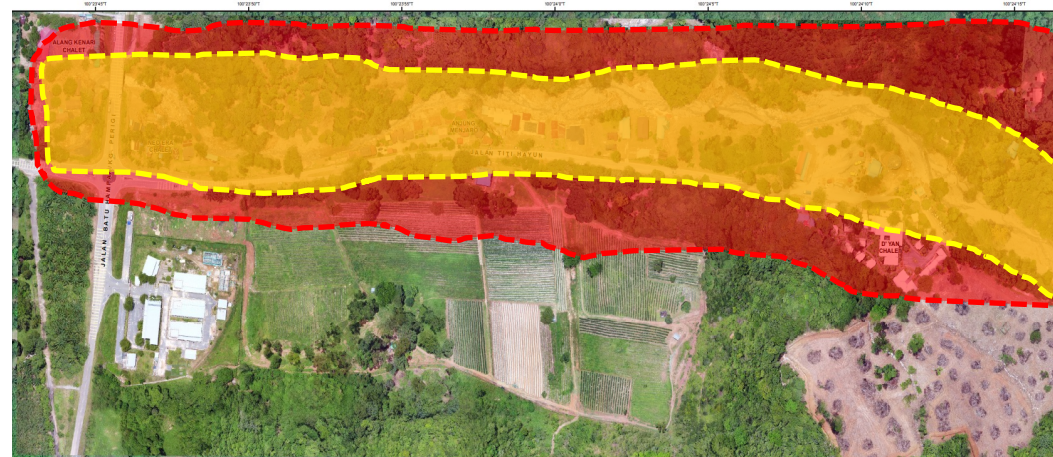


Kemensah Landslide



VARIOUS PROJECT WITH TECHNICAL AGENCIES

PETA KHAS TITI HAYUN, YAN, KEDAH (SELEPAS KEJADIAN BANJIR)
(ORTOFOTO PADA 24 OGOS 2021)



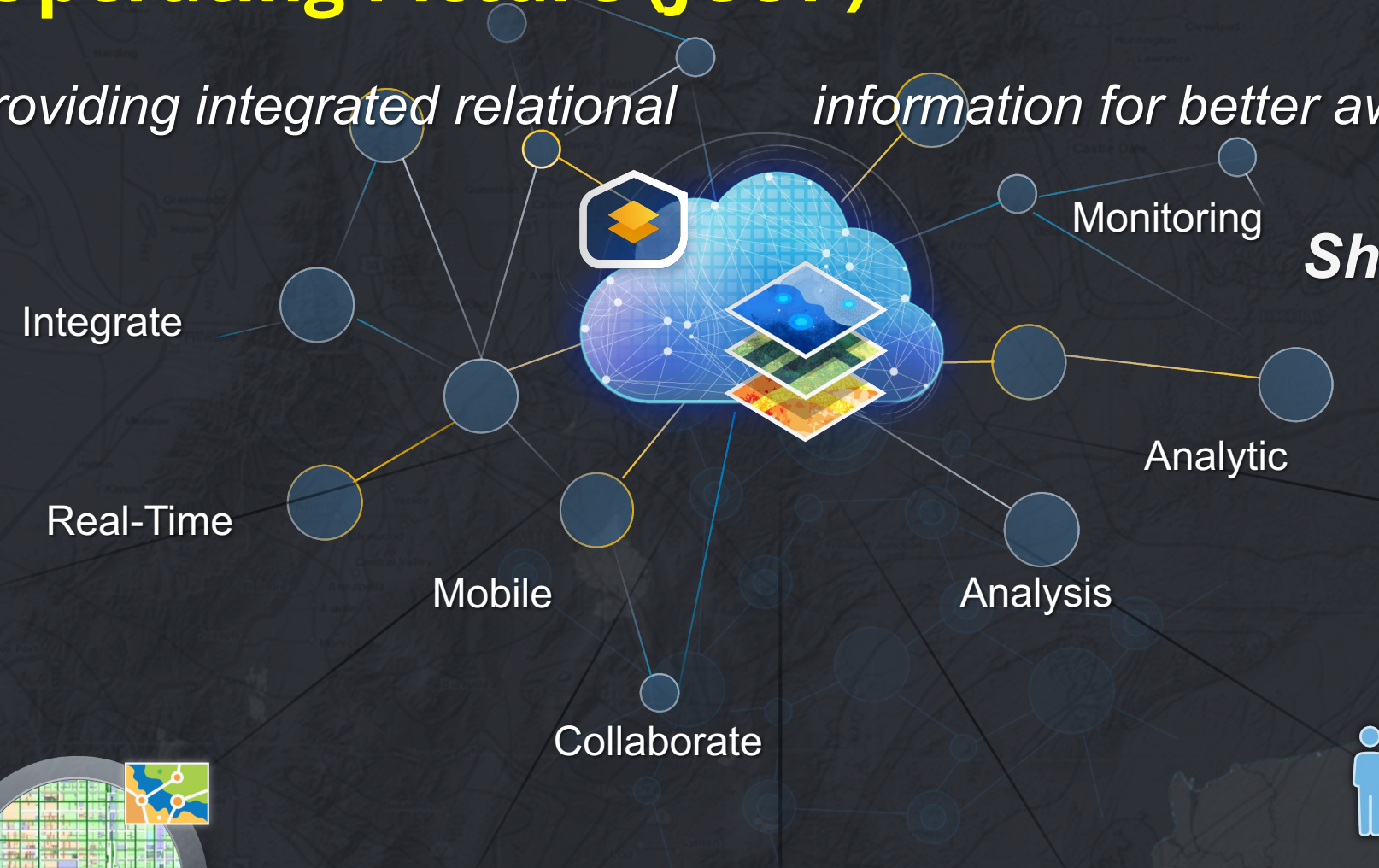
3.0 GEOSPATIAL SUPPORT IN DISASTER MANAGEMENT

3

GEOSPATIAL PRODUCTS - DGIM Enterprise Platform - Joint Common Operating Picture (JCOP)

Providing integrated relational information for better awareness...

Shared Data & Services



Tabular (Cases)

- Daily & Cumulative

Population & Demographics

- Vulnerable population
- Gender / age

Capacity Data

- Workforce officer
- Rescue equipment
- PPE, safety apparatus, etc.
- Roadblock operation
- Patrolling

Operation Resources

Facilities

- Designated hospitals
- Quarantine/Evacuation centers
- POIs (Essential services)

SOPs & Regulations

- Evacuation SOPs
- Shelter regulation/SOP
- Return to home/work

Disaster Hotspot (District, Country, etc)

- Locality Information



3

DGIM Activities

STRATEGIC DECISION



English Malay 中文 Arabic Español தமிழ்

General Business Crime & Courts Politics Sports Region



GENERAL > NEWS

DGIM PLATFORM TO IMPROVE DISASTER PREPAREDNESS – ARMIZAN

30/10/2023 02:47 PM



Government Decision to use DGIM Platform for Disaster Management:

1. Data Sharing among Technical Agencies
2. Information Integration for Operational Dashboard
3. Data Driven Decision Making Process
4. Effective Reporting System to Stakeholders
5. Monitoring Implementation and Effectiveness

3

DGIM Activities

Application Configuration and Information Integration

DGIM JOINT COMMON OPERATING PICTURE (JCOP) SUPPORTING THE OPERATION

Enterprise Geospatial Information System (GIS)

- Provide comprehensive geospatial information and services
- Border option : PTG/ SPR/ PBT

Dashboard

- Area Profile
- Demography Module
- Economy Module
- Service Oriented Architecture (SOA)

JCOP Functionalities

Real – Time Concept

- Drone Orthorectified Image
- Satellite Orthorectified Image
- Drone Video.
- Crowdsorce

Analysis

- Flood Prediction (DTM)
- Hotspot

Logos: MAMPU, NSC, MaCGDI, JUPEM

Damage Assessment – ML / AI / Full Motion Video

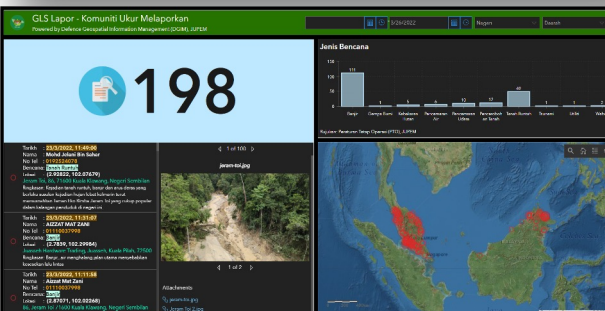
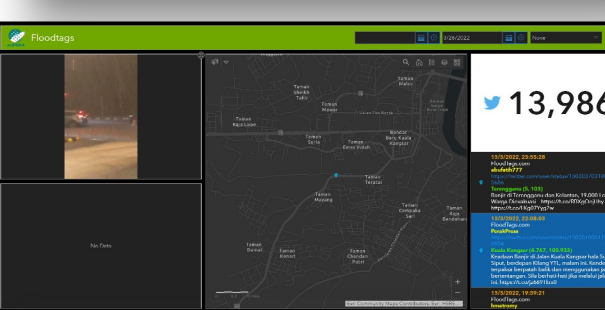
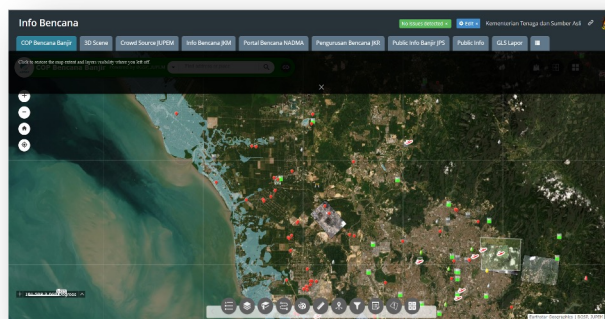
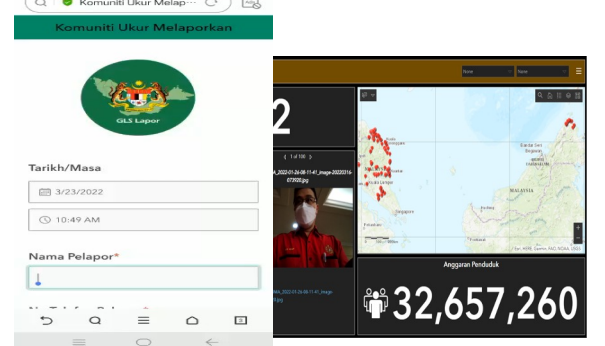
Mapping Product - UAV & Satellite Imagery

Field Reporting Data – MAF / Agencies

Visual J-COP Disaster Apps + Drone Fleet Commander System

Collecting data using other social media

crowdsorce



Public Works
Department



Department of
Social Welfare



MET Malaysia



Civil Defence
Department



Malaysian
Armed Forces



Collaborative Data Management



DGIM Activities

Training and Familiarization



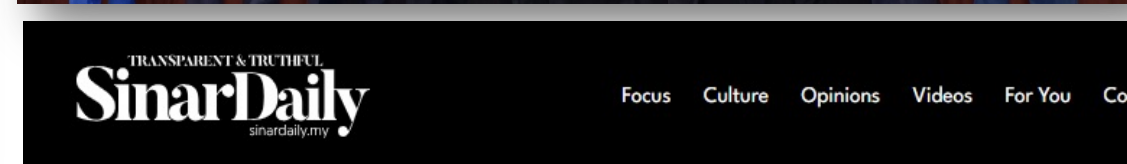
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DGIM Activities – Analytic and Dissemination

POC for Disconnected Environment with AWS



Integrating DGIM with Ministry of Science, Technology, and Innovation (MOSTI) Initiative



Proposed Collaboration - UTHM, Salford University UK and JUPEM



AWS Snowball Edge for Rugged and Tactical Edge

BRINGS AWS TO RUGGED EDGE AND LOCATIONS WITH NO OR LIMITED NETWORK CONNECTIVITY

Edge Compute and Edge Storage use cases:
32 - 104 vCPU, 208 - 416 GB RAM
28 - 210 TB NVMe storage
Up to 100G Networking

Tamper-resistant
Tamper-evident



Handles up to
200G impact



Airdrop-able
MIL-S-901D

Meets FISMA High,
FedRAMP ITAR, CJIS, and
DoD SRG Impact Level 6
requirements

Weights 49 lbs, can be
handled by a single person



Operates on unconditioned
power and in non-datacenter
environments (0° to 45°C)



Data secured with 256-bit encryption
Designed to be operated by
non-technical personnel



MOSTI preparing 200 drones to be sent to flood hotspots

20 Oct 2022 04:58pm



5.0 IMPACT TO PUBLIC AND COUNTRY

1 Sharing information to public and Non-Governmental Organization



Disaster ON AIR

3 Support NADMA, MKN and related agencies managing national crisis and emergencies effectively

2 Improving Shared Situational Awareness



1

Spatial data or information is critical for disaster risk management

2

Geospatial Enterprise Platform is a game changer to manage disaster information spatially through collaborative effort

3

JUPEM is aligning its role to fulfil responsive requirements while improving the quality of authoritative foundation data.



THANK YOU