

ICAO / WFP - 2nd Aviation Safety Campaign – March 2<sup>nd</sup> & 3<sup>rd</sup> 2023

# Airport Status Information Tool (ASIT)



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Block.Aero

[www.block.aero](http://www.block.aero) • Block Aero 2023

We are a 20+ strong  
community of professionals  
who **love** aviation



# Block.Aero



Todd Siena  
Founder & CEO

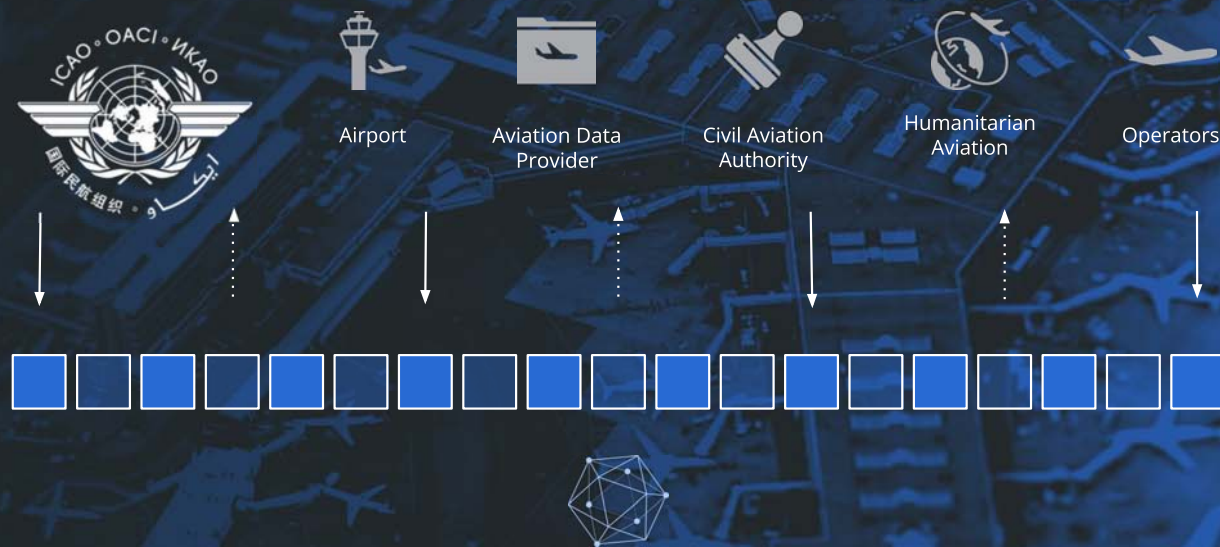
15+ years of experience in aviation, entrepreneurship, management consulting, and supply-chain. Named *Top 40 Under 40* by Aviation Week and listed in the *Future of Aviation* by ICAO. Aerospace industry thought leader and public speaker.



Adam Siena  
Co-Founder & CTO

13+ years of enterprise software experience. 7+ years at the innovation and technology division of UnitedHealth Group. BS in Computer Science from the University of Connecticut

# Building Resilience with Blockchains





What is a Blockchain?

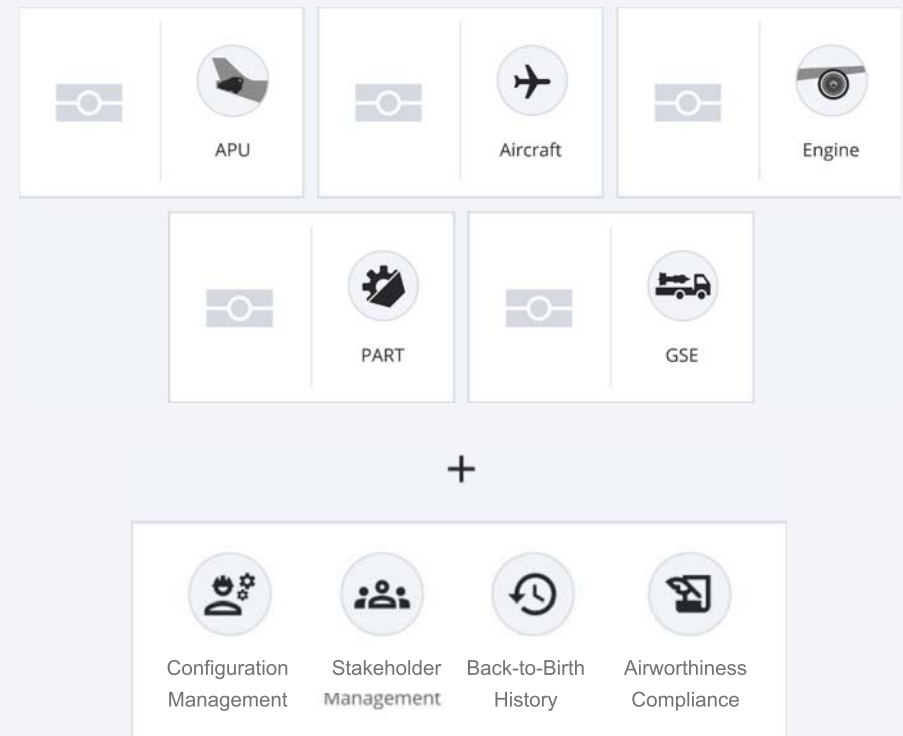
What are Digital Assets?

...in Humanitarian Aviation?

## Data Blocks

Blocks of data representing certificates, operational status histories, documents, and other formats of standardized records can be appended to Blockchain Aviation Assets (BAA) by asset stakeholders.

Immutability and encryption of the digital asset profile makes it easy to manage data throughout the lifecycle.





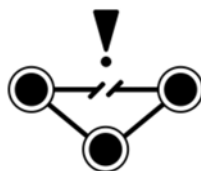
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# Why Blockchain?

- Key advantages



Encryption /  
Immutability and  
Role-Based  
Access Control



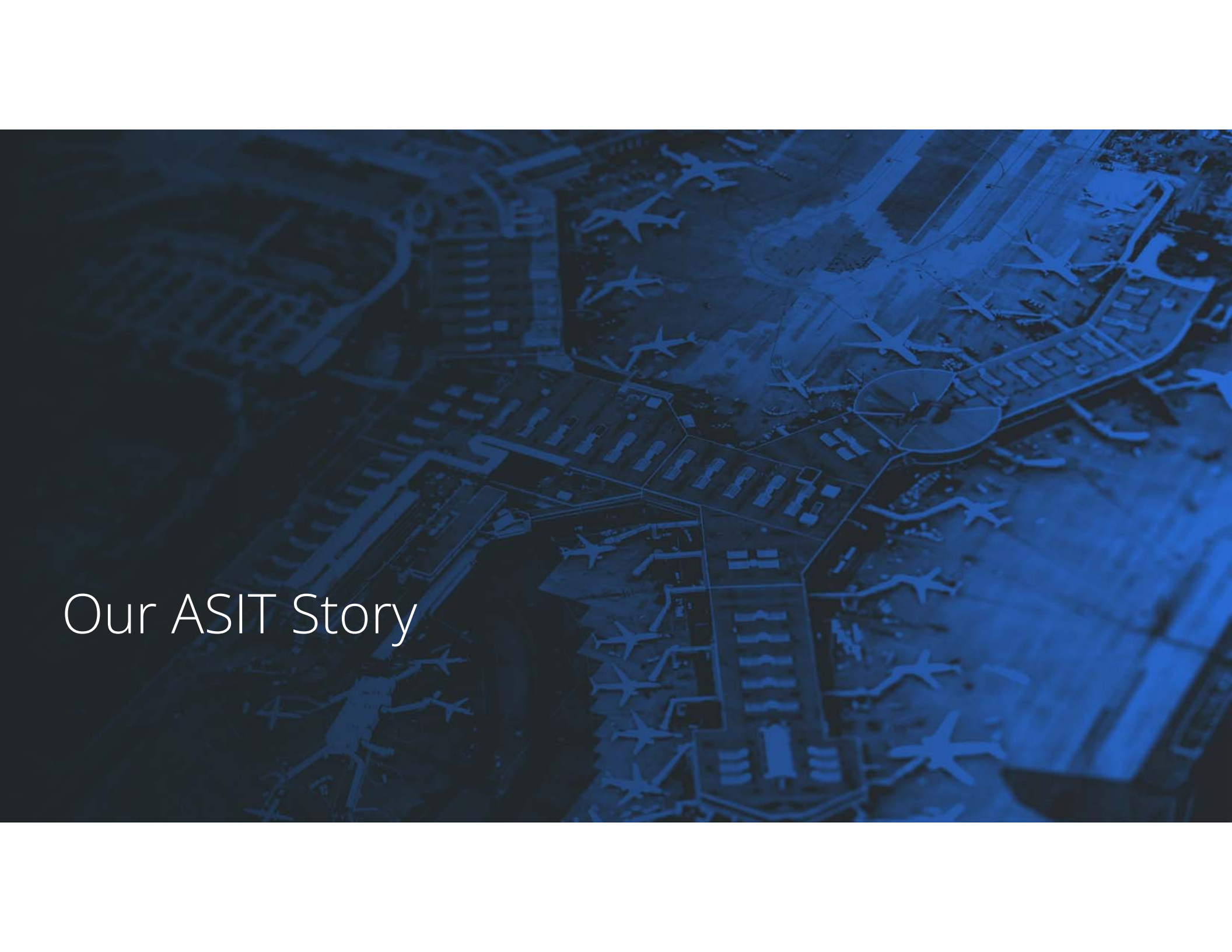
System Redundancy /  
No Single Point of Failure



Data Process and  
Reporting Standardization  
and Automation



Multi-Stakeholder  
Status  
Management



# Our ASIT Story



# Current *modus operandi*

- Request for information regarding airport status:

- Triggered by OCHA
- Multiple formats
- Multiple sources
- Multiple versions
- Verified vs Unverified
- Official vs Unofficial
- Timeliness
- Disambiguation



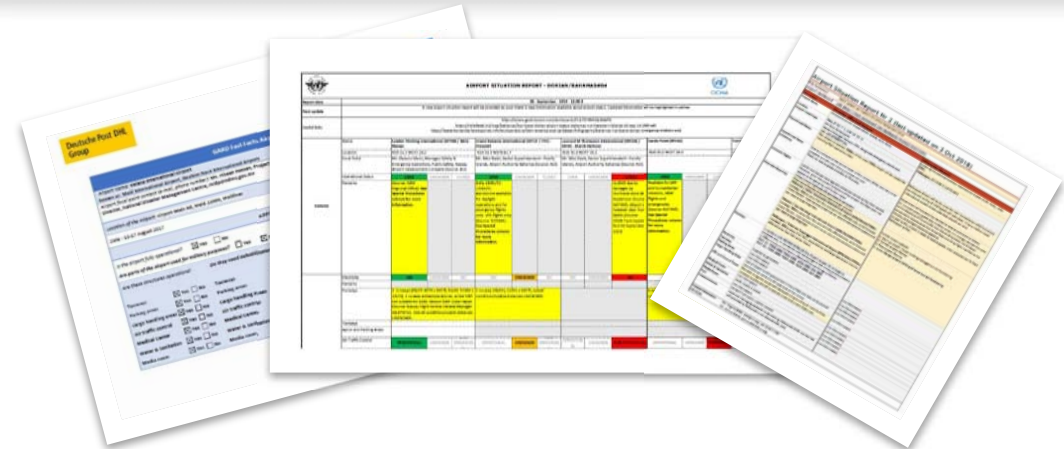
HUMANITARIAN  
ACCESS & CAPACITY



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# Innovation Partnership

- R&D Process:
  - Review existing ASR reports
  - Survey humanitarian, ICAO RO & state CAA stakeholders
  - Input from subject matter experts
  - Weekly workshops to facilitate design, development & innovation in C19 remote collab environment
  - Leverage existing Block Aero and Hyperledger frameworks for rapid prototyping and deployment
  - Agile approach to start with MVP and improve each iteration



Survey

Please provide any input or suggestions to the following questions regarding the ASIS tool.

Email address \*

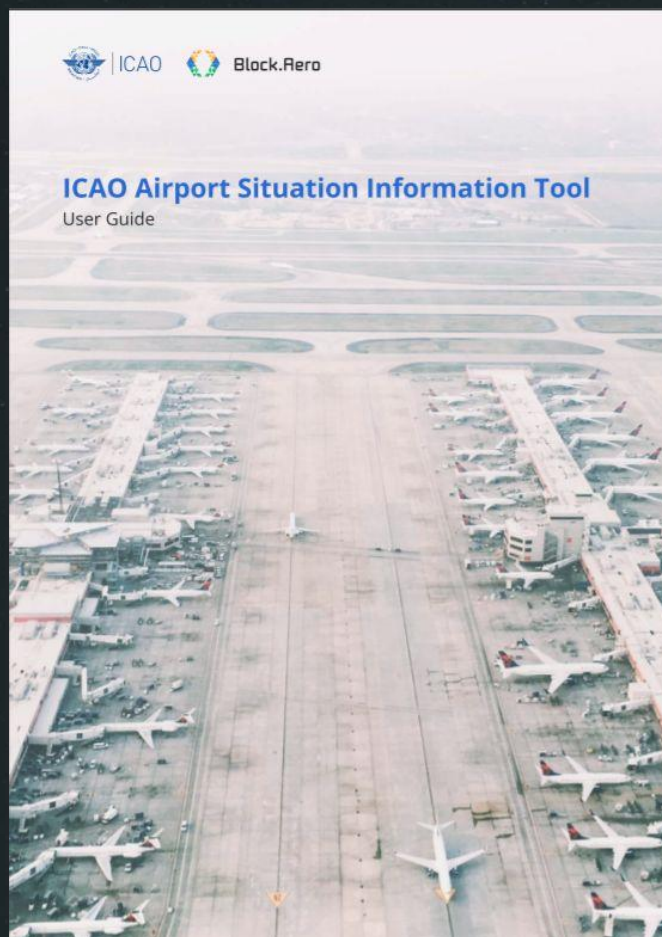
Valid email address

This form is collecting email addresses. [Change settings](#)

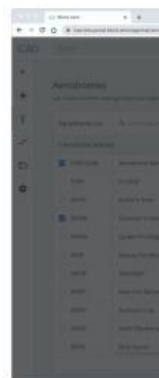
Do you have any suggestions about how to render Airport Status data in the ASIS tool interface - specifically when the data is submitted or confirmed by a CAA or ICAO RO?

ASIS tool - Suvarnabhumi International Airport, Thailand





Step 3: A popup will open and you will be asked to "Confirm".



#### Field Name

Disaster Threat Status

By changing the disaster threat status to "Normal":

- Aerodromes will cease receiving automatic data feeds and no longer generate new ASRs.

By changing the disaster threat status to "Normal":

- Aerodromes will start to receive automatic data feeds and generate new ASRs.
- Begin generating ASR report
- Send information requests to the relevant authorities

By changing the disaster threat status to "Normal":

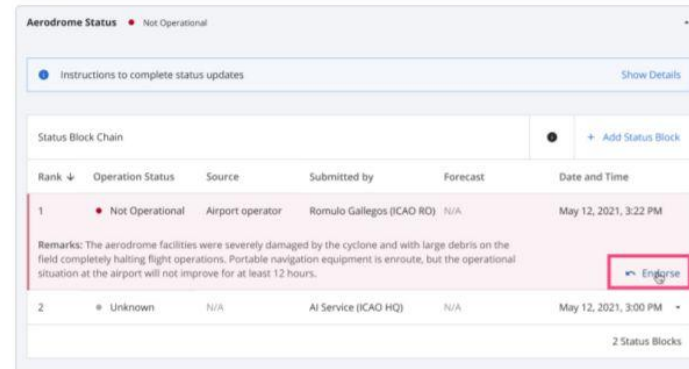
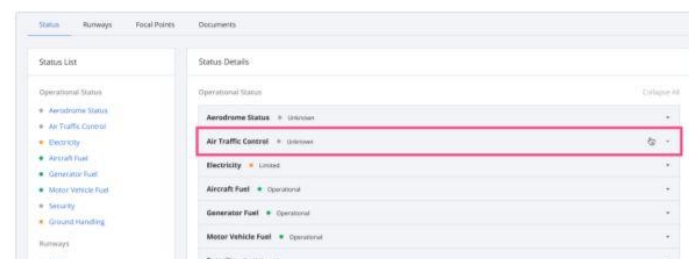
- Aerodromes will cease receiving automatic data feeds and no longer generate new ASRs.

ICAO AI Services will result in all status lists having a nearly real-time update status (15 mins).

## 5.3 Endorsing a Status update

Status blocks on the chain of updates, whether from an automated source or manually entered can be endorsed by a user from the CAA or RO.

Step 1: Expand the status that you would like to update and click on "Endorse".



Status Endorsement



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# A Quick Tour of the Tool

- Organizational Roles
  - Aerodrome (CAA)
  - ANSP (CAA)
  - ICAO RO

Search Assets

Airport Operator: Airports Authority of Trinidad and Tobago  
ICAO RO: ICAO NACC Regional Office  
Emergency Reporting Status: Active

ANSP: Trinidad and Tobago Civil Aviation Authority

Status Runways Focal Points Documents NOTAMs

Status List

Operational Status

- Aerodrome Status
  - Air Traffic Control
  - Electricity
  - Aircraft Fuel
  - Generator Fuel
  - Motor Vehicle Fuel
  - Security
  - Ground Handling
- Runways
  - 10
  - 10/28
- Special Procedures
  - Slot Allocation
  - Prior Permission

Status Details

Operational Status

Aerodrome Status

Instructions

Status Block Chain

Endorse Status?

You're about to endorse status updates. This action will add a new entry to the Status Block Chain.

Operation Status: Operational  
Forecast Condition: N/A  
Forecast Time (hours): N/A  
Remarks: PIARCO MORNE CATHERINE SSR U/S DUE MAINT. CREATED: 27 Feb 2023 14:10:00 SOURCE: TTPPNYX  
Submitted by: ICAO API (International Civil Aviation Organization)  
Submitted at: Feb 27, 2023 3:00 pm

Cancel Endorse

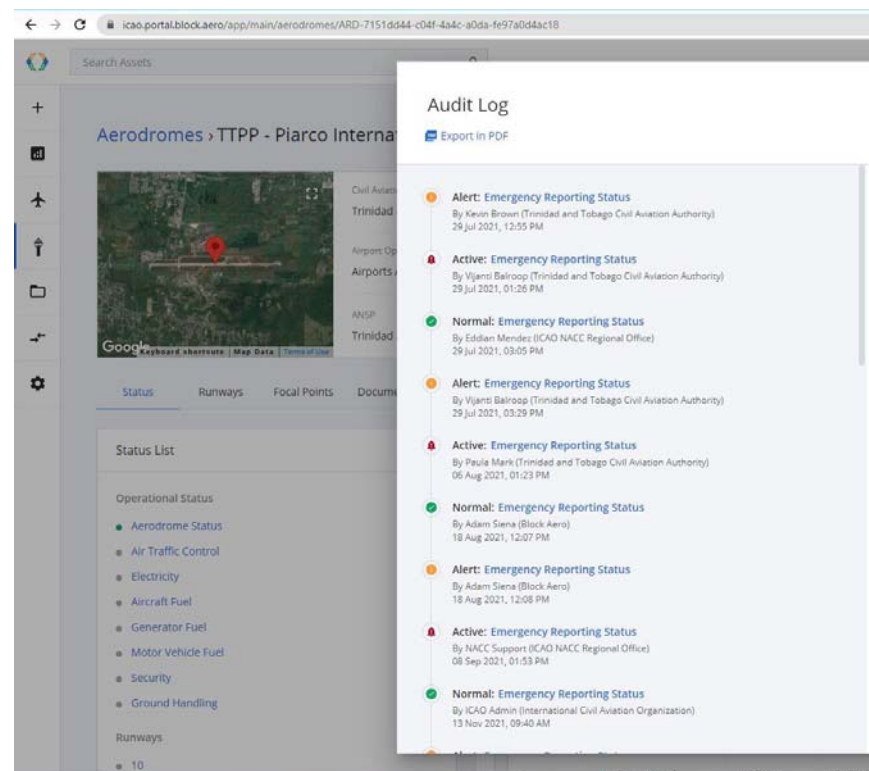
| R... | Operation Status | Source | Submitted By          | Date and Time        |
|------|------------------|--------|-----------------------|----------------------|
| 1    | Operational      | NOTAM  | ICAO API (Internation | 27 Feb 2023, 3:00 pm |
| 2    | Operational      | NOTAM  | ICAO API (Internation | 27 Feb 2023, 2:00 pm |
| 3    | Operational      | NOTAM  | ICAO API (Internation | 21 Feb 2023, 4:00 am |

Air Traffic Control: Unknown



# A Quick Tour of the Tool

- Simulation Participant Roles
  - Facilitator
  - ASIT App Operator
  - Focal Point Role Players
  - Observers





# A Quick Tour of the Tool

## Two Approaches on Each Type of Scenario

- Scenario 1: Slow Onset
  - Still rapidly Evolving
  - More demanding test of baseline flow
  - More closely following script
- Scenario 2: Rapid Onset
  - Strive to assess matching of ASIT with State emergency management communication protocols
  - Free play / sandbox



# A Quick Tour of the Tool

## ASIT Information Management Flows

- Direct Method with CAA on ASIT
- Indirect Method with RO Coordination
- NOTAM Method with ICAO API Service



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## Scenario 1 / Turn 2

### Description

- On April 7<sup>th</sup> 2021, ICAO NACC Regional Office, Eastern Caribbean (E/CAR) States, receive news from UWISRC that volcanic eruption is imminent within next 48 hours.
- ECCAA **decides** to delegate coordination role to Trinidad and Tobago CAA in the event of eruption.
- ICAO NACC Regional Office and Eastern Caribbean (E/CAR) States make decision to change disaster status threat to **Active** to appropriate airports.





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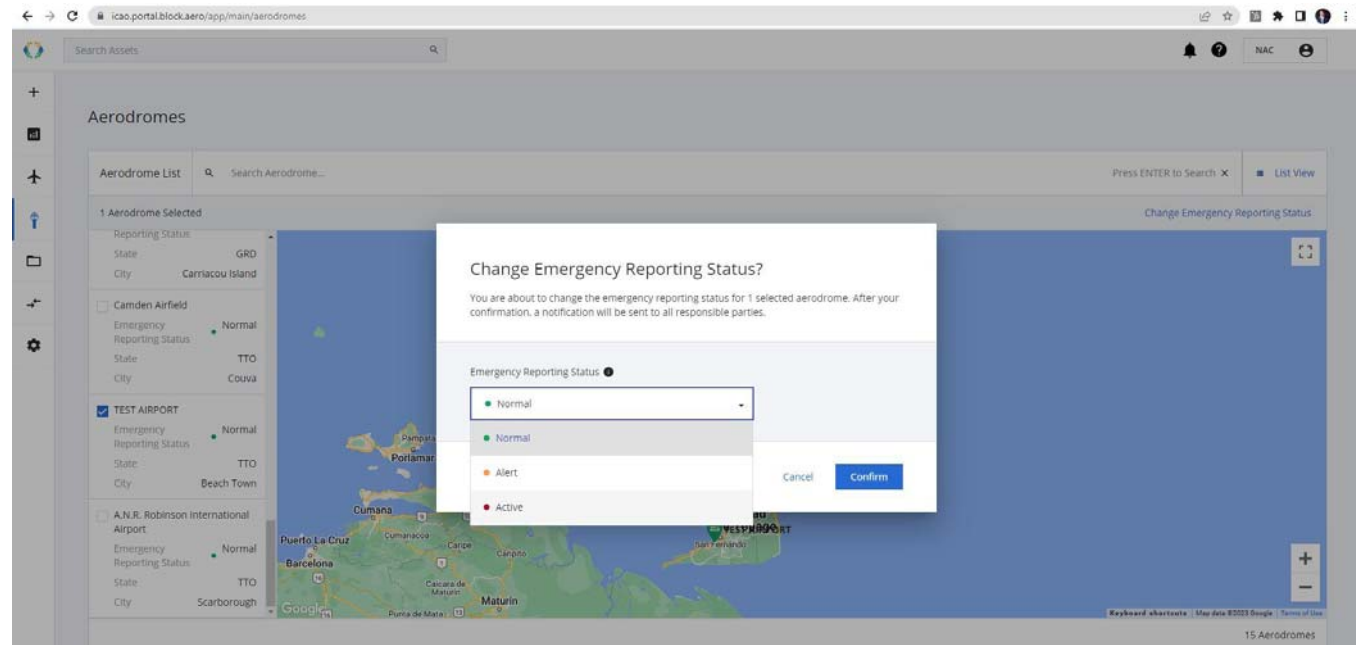
# ASIT in practice as a Sim Exercise

- Each Turn
  - Scenario Setting
  - Information Brief
  - Action
  - Discovery



## Description SOTO

- A Hurricane is approaching
- TTCAA and NACC decide to set disaster status for TEST airport to 'active'





## Action

- Set active disaster threat status at TEST
- Make sure focal points are up-to-date

icaeo.portal.block.aero/app/main/aerodromes/ARD-7151dd44-c04f-4a4c-a0da-fe97a0d4ac18

Search Assets

Aerodromes > TTPP - Piarco International Airport

Send ASR

Change Emergency Reporting Status

Civil Aviation Authority: N/A  
Location: Piarco, Trinidad & Tobago  
FIR Code: TTZP

Airport Operator: Airports Authority of Trinidad and Tobago  
ANSP: Trinidad and Tobago Civil Aviation Authority

Google Maps

Status Runways Focal Points Documents NOTIFICATIONS

Focal Points List

1 Focal Point Selected

|                                     | Service Agency            | Contact Title  |
|-------------------------------------|---------------------------|----------------|
| <input checked="" type="checkbox"/> | Air traffic control units | Manager Air    |
| <input type="checkbox"/>            | Aerodrome administration  | Unit Chief Ae  |
| <input type="checkbox"/>            | Air traffic control units | Unit Chief AC  |
| <input type="checkbox"/>            | Air traffic control units | Air Traffic Co |

4 Focal Points

Add Focal Point

Please notice that focal points list can be viewed by all member organizations of the network.

Service Agency: Air traffic control units  
Airport Status Type: Select  
Contact Title: Manager Air Traffic Services and ANS Safety  
Contact Name: Alexis Brathwaite  
Contact Number: 18686205969  
Contact Email: abrathwaite@caa.gov.tt

Cancel Save Focal Point

Audit Log

- Operational: Aerodrome Status  
By ICAO API (International Civil Aviation Organization)  
27 Feb 2023, 02:30 PM
- Operational: Aerodrome Status  
By ICAO API (International Civil Aviation Organization)  
27 Feb 2023, 02:00 PM

View All

+ Add Focal Point

Delete

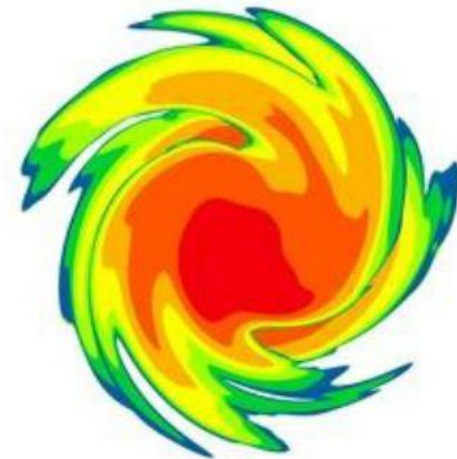
Email: site@caa.gov.tt, @caa.gov.tt, @caa.gov.tt, @caa.gov.tt

Airport Status Type



## Description S0T1

- A Hurricane has hit TEST airport





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## Action

- Please read the briefs for your team
- Clarify the situation at TEST airport with ASIT

ICAO UNITING AVIATION NO COUNTRY LEFT BEHIND

### ASIT Tool Simulation Exercise

#### SIMULATION INFORMATION BRIEF

You have no internet!

Clarify the operational status of TTPP if the RO is able to make contact with you.

1. TTAA informed you emergency generators and aircraft refueling equipment have been damaged by hailstones from the volcano.
2. Grid power is browning out and the airport generators need to be activated.
3. TTAA informed you that only 1 of the backup generators is still operational. The generator fuel depot is not affected.
4. There are security staff onsite and the situation is not escalating.
5. Ground handling is out of service and mainly focused on helping repair GSE equipment.
6. Ashfall has clogged filters and short-circuited ground handling equipment. Now, only 1 of 4 K-loaders are currently available.
7. The water system shut down due to the heavy ashfall and is making it difficult to repair equipment. In about 12 hours several large water tanker trucks are scheduled to arrive at POS to aid in the cleanup.



Search Assets

Trinidad and Tobago Civil Aviation Authority

POS

Operational

View All

StatusRunwaysFocal PointsDocumentsNOTAMS

Status List

Operational Status

Aerodrome Status

Air Traffic Control

Electricity

Aircraft Fuel

Generator Fuel

Motor Vehicle Fuel

Security

Ground Handling

Runways

10

10/28

Special Procedures

Slot Allocation

Prior Permission

Add Aerodrome Status

Please provide the latest available information on aerodrome. This update will be added to the Status Block Chain.

Operation Status

Select

Source

Select

Forecast Condition - Optional

Select

Forecast Time - Optional

Select

Remarks - Optional

Enter

Cancel

Submit

Collapse All

Show Details

+ Add Status Block

Date and Time

27 Feb 2023, 3:00 pm

27 Feb 2023, 2:00 pm

21 Feb 2023, 4:00 am

3 Status Blocks

Air Traffic Control

Unknown

Electricity

Unknown

Aircraft Fuel

Unknown



Search Assets

Trinidad and Tobago Civil Aviation Authority

POS

Operational

View All

Status

Runways

Focal Points

Documents

NOTAMs

Status List

Operational Status

Aerodrome Status

Air Traffic Control

Electricity

Aircraft Fuel

Generator Fuel

Motor Vehicle Fuel

Security

Ground Handling

Runways

10

10/28

Special Procedures

Slot Allocation

Prior Permission

Add Aerodrome Status

Please provide the latest available information on aerodrome. This update will be added to the Status Block Chain.

Operation Status

Limited

Source

Civil Aviation Authority

Forecast Condition - Optional

Deteriorating

Forecast Time - Optional

Next 12 hours

Remarks - Optional

Heavy ashfall is expected to hit the aerodrome imminently

Cancel

Submit

Air Traffic Control

Unknown

Electricity

Unknown

Aircraft Fuel

Unknown

27 Feb 2023, 3:00 pm

27 Feb 2023, 2:00 pm

21 Feb 2023, 4:00 am

3 Status Blocks

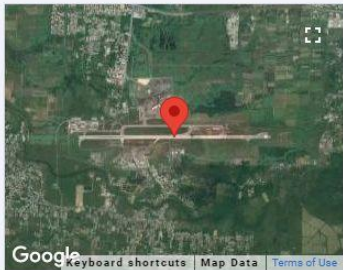


Search Assets

## Aerodromes > TTPP - Piarco International Airport

[Send ASR](#)

[Change Emergency Reporting Status](#)



|                                              |                           |                            |
|----------------------------------------------|---------------------------|----------------------------|
| Civil Aviation Authority                     | Location                  | FIR Code                   |
| Trinidad and Tobago Civil Aviation Authority | Piarco, Trinidad & Tobago | TTZP                       |
| Airport Operator                             | ICAO RO                   | Emergency Reporting Status |
| Airports Authority of Trinidad and Tobago    | ICAO NACC Regional Office | ● Active                   |
| ANSP                                         | IATA Code                 | Aerodrome Status           |
| Trinidad and Tobago Civil Aviation Authority | POS                       | ● Operational              |

### Audit Log

- **Operational: Aerodrome Status**  
By ICAO API (International Civil Aviation Organization)  
27 Feb 2023, 03:00 PM
- **Operational: Aerodrome Status**  
By ICAO API (International Civil Aviation Organization)  
27 Feb 2023, 02:00 PM

[View All](#)

Status Runways Focal Points Documents NOTAMS

All Document Type

Any date

|                                                  |                                                  |                                                |                                                  |                                                 |                                                 |                                                 |                                                 |                                                 |
|--------------------------------------------------|--------------------------------------------------|------------------------------------------------|--------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|
|                                                  |                                                  |                                                |                                                  |                                                 |                                                 |                                                 |                                                 |                                                 |
| <u>ASR</u><br>18 Nov 2022<br>e3b0c44298fc1c14... | <u>ASR</u><br>01 Jul 2022<br>bcfe2205aace6479... | <u>ASR</u><br>29 Jun 2022<br>deec694d6bdc68... | <u>ASR</u><br>28 Jun 2022<br>aa880a84f6b2c2f4... | <u>ASR</u><br>28 Jun 2022<br>cc8b5975005945c... | <u>ASR</u><br>28 Jun 2022<br>b5e990a3ce8e25e... | <u>ASR</u><br>21 Jun 2022<br>ce7914c51ab1e03... | <u>ASR</u><br>21 Jun 2022<br>762fe40c2ea7d2e... | <u>ASR</u><br>21 Jun 2022<br>8338b1170c29708... |



## Description S0T2

- In the aftermath, CAA is having difficulty to access the ASIT tool





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## Action

- Please read the briefs for your team
- Clarify the situation at TEST airport with ASIT



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NO COUNTRY LEFT BEHIND



## ASIT Tool Simulation Exercise

### SIMULATION INFORMATION BRIEF

You have no internet!

Clarify the operational status of TTPP if the RO is able to make contact with you.

1. TTAA informed you emergency generators and aircraft refueling equipment have been damaged by hailstones from the volcano.
2. Grid power is browning out and the airport generators need to be activated.
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5. Ground handling is out of service and mainly focused on helping repair GSE equipment.
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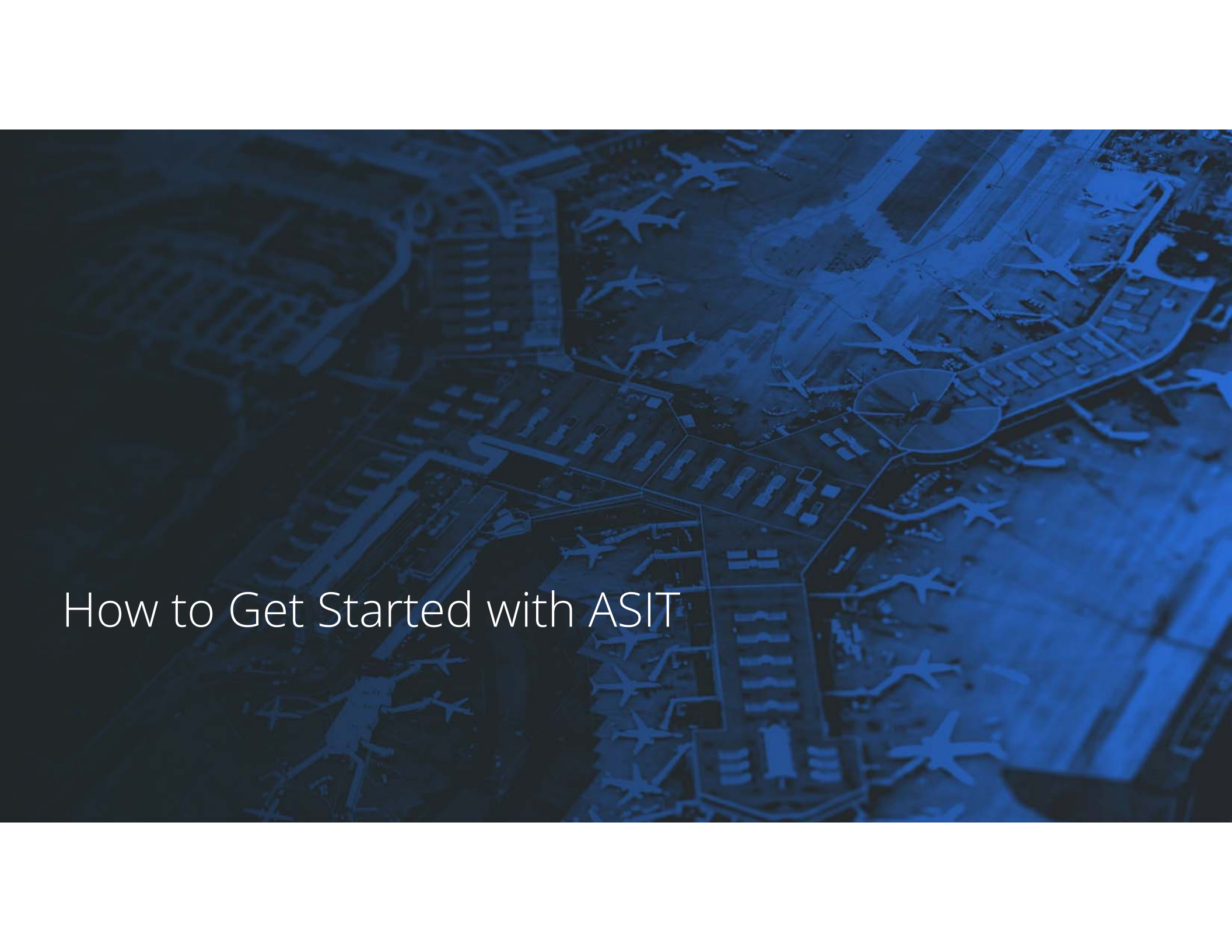
### Endorse Status?

You're about to endorse status updates. This action will add a new entry to the Status Block Chain.

|                                                                                           |                       |
|-------------------------------------------------------------------------------------------|-----------------------|
| Operation Status                                                                          | Source                |
| <div><div></div>Operational</div>                                                         | NOTAM                 |
| Forecast Condition                                                                        | Forecast Time (hours) |
| → N/A                                                                                     | N/A                   |
| Remarks                                                                                   |                       |
| PIARCO MORNE CATHERINE SSR U/S DUE MAINT. CREATED: 27 Feb 2023 14:10:00 SOURCE: TTPPYNYX. |                       |
| Submitted by                                                                              | Submitted at          |
| ICAO API (International Civil Aviation Organization)                                      | Feb 27, 2023 3:00 pm  |

Cancel

Endorse



# How to Get Started with ASIT



# ASIG Solution Features

- New tool implemented with blockchain + API + cloud technology:
  - Automated API data feeds
  - Standardized reporting format
  - Standardized reporting process
  - Known sources
  - Version control and traceability
  - Validation by state authorities
  - Immutable record of events
  - Analytics for continuous improvement of emergency information management

The screenshot displays the ASIG solution interface for TTPP - Piarco International Airport. The main content area is titled "Airport Status Overview" and shows the following data:

| Operational Status  |                 |
|---------------------|-----------------|
| Aerodrome Status    | Limited         |
| Air Traffic Control | Limited         |
| Electricity         | Limited         |
| Aircraft Fuel       | Operational     |
| Generator Fuel      | Operational     |
| Motor Vehicle Fuel  | Not Operational |
| Security            | Unknown         |
| Ground Handling     | Unknown         |

| Runways       |         |
|---------------|---------|
| Runway -10    | Unknown |
| Runway -10/28 | Unknown |

| Special Procedures |          |
|--------------------|----------|
| Slot Allocation    | Required |
| Prior Permission   | Unknown  |

On the right side, there is a "Document Details" panel with the following information:

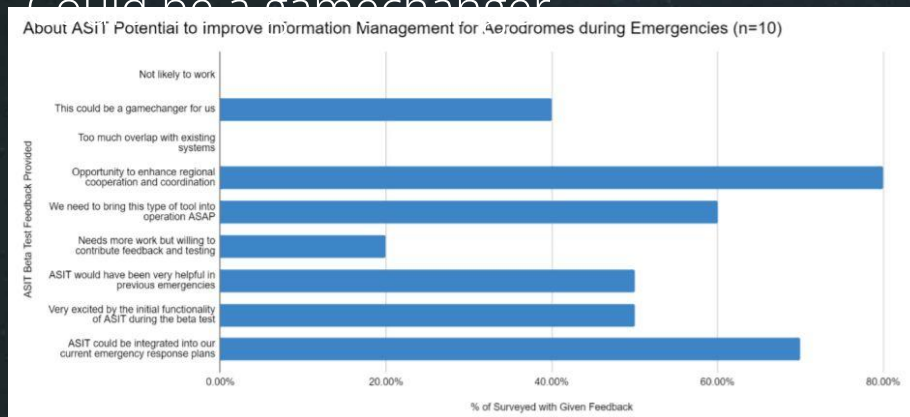
- Document ID: DOC-6616aeeef-a3c1-476e-90eb
- Document Type: ASR
- Document Number: N/A
- Revision Date: N/A
- Issue Organization: N/A
- Submitted by: NACC Support

# Survey on ASIT benefits for Information Management at Airports

Opportunity to enhance regional cooperation and coordination

ASIT could be integrated into our current emergency response plans

Could be a gamechanger





# How to Continuously Improve ASIT

## For example:

- Operational Status Types
  - What about water facilities? Storage facilities?
  - X is unclear because it might cause Y
  - ABC could be helpful, if it included XYZ
- Documents
  - What about grid maps?
  - What about emergency plans?
- ASRs
  - I would like to see X, Y, and Z
  - Because it would help me A, B, C

### Airport Situation Report

TTPP - Piarco International Airport  
Piarco, , Trinidad & Tobago

Revision Date: 29 Jun 2022, 10:15 GMT



ICAO  
Powered by BlackHole

Aerodrome Name  
Piarco International Airport

CAA  
Trinidad and Tobago Civil Aviation Authority

Airport Operator  
Airports Authority of Trinidad and Tobago

ANSP  
Trinidad and Tobago Civil Aviation Authority

Location  
Piarco, , Trinidad & Tobago

FIR Code  
TTZP

Aerodrome ID  
[ARD-7151d544-c04f-4a9c-a0da-5e97a0d5ac18](#)



ICAO Code  
TTPP

ICAO RO  
ICAO NAACC Regional Office

Disaster Threat Status  
• Normal

Aerodrome Status  
• Operational

Airport Status Overview | TTPP - Piarco International Airport

< 1 / 16 >

29 Jun 2022, 10:15 GMT

# Let's start a conversation and schedule your first ASIT demo

✉ [cdamar@icao.int](mailto:cdamar@icao.int)  
[todd.siena@block.aero](mailto:todd.siena@block.aero)

