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ST MAARTEN

SXM Princess Juliana International Airport

SEPTEMBER 2018 - ICAO SEMINAR

EMERGENCY
THALES SUPPORT TO SXM

TURNKEY CNS/ATM – POST IRMA HURRICANE

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ST MARTEEN – SXM AIRPORT

Sint Maarten's Princess Juliana International Airport (PJIA/SXM Airport):

- Located on the Dutch sector of the Island of St Martin (Philipsburg) in the Caribbean – the island is divided between Dutch and French sovereignty.
- SXM is the 2nd busiest airport in the Eastern Caribbean after Porto Rico with commercial & Business aviation Hub.
- PJIA Holding NV is both managing the airport & ANSP.

ATS Services:

- Besides providing approach, tower and ground control at PJIA, PJIA also provide approach control for 5 other airports: Anguilla (UK), Grand Case (French side of St Martin), St Barth (France) -1st world AFIS airport in terms of mvts , St Eustatius (Netherlands), Saba (Netherlands)
- PJIA TMA coordinates with San Juan FIR (West part) & PIARCO FIR (South & East)
- PJIA manages 100,000 aircrafts movements per year, 70% at PJIA & the rest at the other 5 airports (mostly St Barth with 25.000 mvts & Anguilla)

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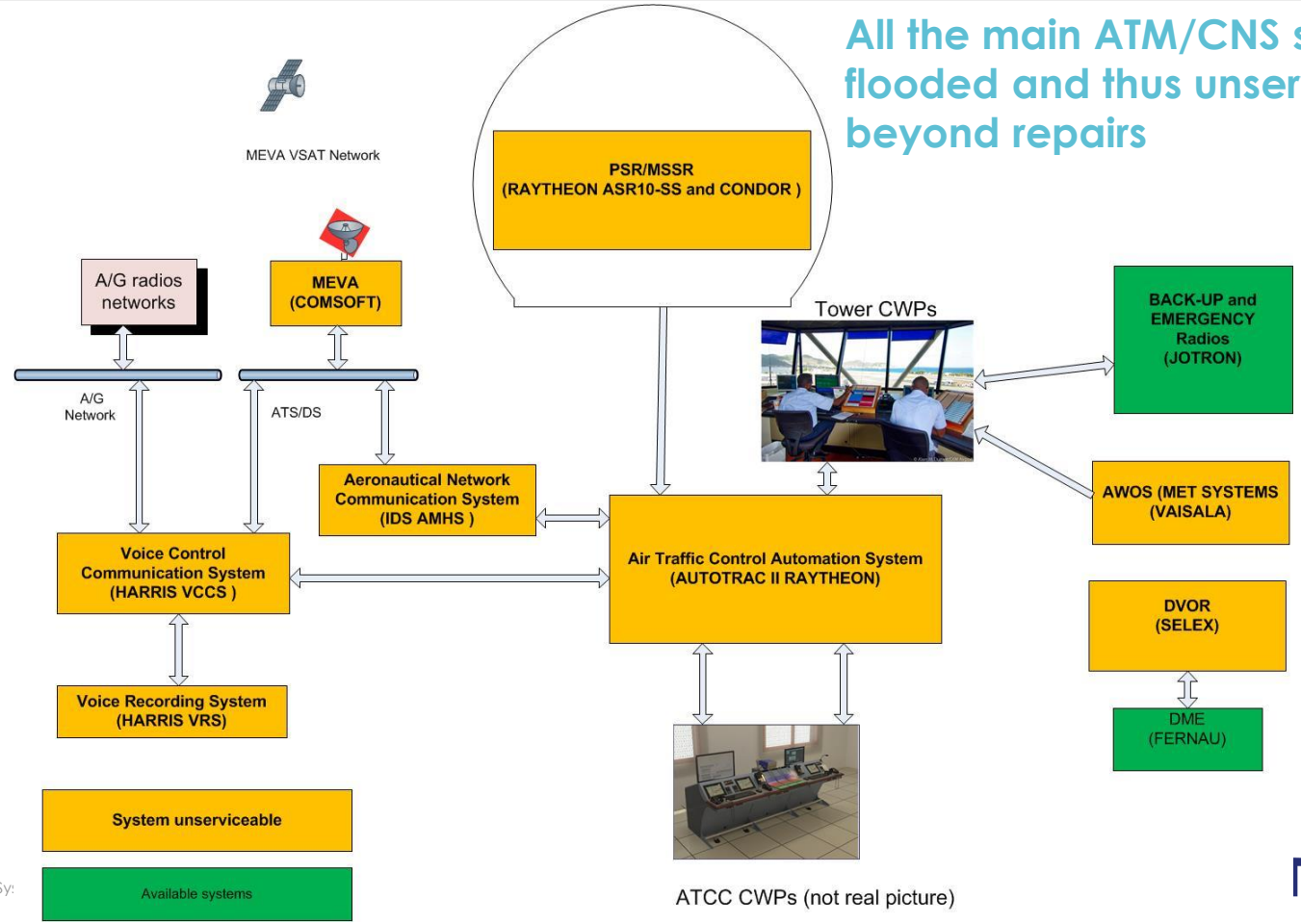
SXM AIRPORT – ATM-CNS status after IRMA

All the main ATM/CNS systems were flooded and thus unserviceable and beyond repairs



Thales preliminary supports

Following IRMA disaster, SXM and Thales initiated discussions to assess how Thales could help SXM authorities.

Preliminary requests from SXM were :

- To carry out a site survey
- To restore Navaids (DVOR) capability
- To provide initial ATM and surveillance capabilities

Navaids capability restoration

VOR/DME Status and envisaged solution

- The main Navaids is a DVOR which was switched off but damages were mainly on the antennas rather than the flooding of the electronics. The DME was able to be restored and operational.
- Thales worked with the French DGAC which has 2 transportable VOR/DME and was ready to provide one of them on a temporary basis.
- We also investigate how to install the DGAC shelter on the counterpoise or very close so as to avoid re-designing the approach charts.

Conclusions

- Unfortunately, remote analysis showed that the DVOR/DME is surrounded by buildings and obstacles in a sector covering the main SXM approach paths.
  Thales carried out simulations which indicated that a Conventional VOR will not work properly in such a perturbed environment and thus the DGAC solution was dropped.

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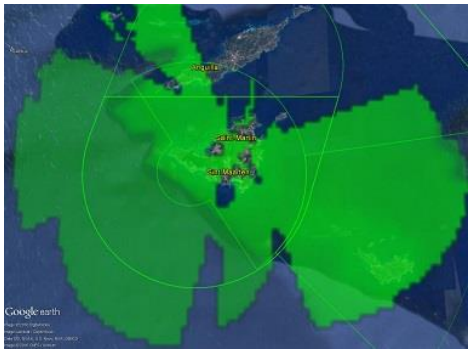
Surveillance capabilities

Surveillance Status and Envisaged Solutions

- PSR/MSSR Radar was unable to operate and out of order
- Standalone ADS-B : A Traffic equipage short study was carried out as well as coverage simulation
- WAM system : Thales studied, in the past, a transportable WAM/ADS-B system using microwave links to transfer data from the remote stations. Simulations were carried out indicating that 5 sites should allow the coverage of SXM TMA.



Conclusion

- Regarding ADS-B, the percentage of A/C equipped with ADS-B qualified was very limited, especially with many GA and VFR flights
- For the WAM, costs of the equipment and its installation, safety case and program duration (compared to radars modernization) prohibited this solution, SXM electing to go quickly to radars

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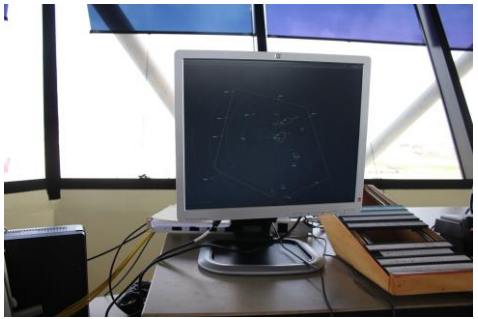
ATM Capability : Supply of a temporary FDP system

Objective was to supply during the site survey a Flight Plan Management system and provide training for easing ATCO tasks until the new ATC is in operation

- This flight plan management is composed of a Flight Data Processor (from TopSky-ATC automation solution) which shall be connected to the new AMHS system, once later in operation. This system provides all ATS messages included flight plan.
- Thanks to its connection to an IER strip printer, the system enables SXM Air Traffic Controllers to have flights strip printed automatically.
- Coordination & level of automation could then be higher than current operations (VFR only)
- Thanks to the embedded Flight Plan Air Situation Display and assuming that the flight plans are updated, the controllers can have a better situation awareness of these flights.



Key remaining issue is the lack of AFTN connexion

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Sint Marteen current project under implementation

- **Thales initiated a Fast track program to support SXM airport recovery**
- **TopSky-ATC automation system & STARNG Primary Radar co-mounted with RSM970S (Site Acceptance Tests next month)**
- **5 TopSky-ATC remote positions are included in the project and could be installed at airports within SXM airport airspace (such as St Barth, St Martin Grand Case, St Eustatius, Saba & Anguilla) to improve coordination & safety**

All of our customers have big ambitions but it's rare to see the determination and vision displayed by SXM Princess Juliana International Airport

Princess Juliana International Airport

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Conclusions

Following a disaster, the restoration of basic CNS/ATM capabilities is not easy, if not anticipated.

In this ICAO region unluckily often affected by such disaster, some transportable packages/equipment and relevant support could be available allowing a quick restoration of CNS/ATM capability based upon :

- A MEVA VSAT terminal,
- A shelterized basic ATM system with VCCS and radios,
- Minimal surveillance capabilities:
  - idealy ADS-B either per satellite or terrestrial station
  - A small autonomous transportable WAM/ADS-B system
- A transportable CVOR/DME and optionally a deployable ILS

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Thank you for your attention

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