

# GSA Grants: Improve HEMS through PBN (SBAS)

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# HEMS Fleet

- I-TNBB → Airbus Helicopters AS365N3, #6609
- I-TNCC → Leonardo Helicopters AW139, #31369
- I-TNDD → Leonardo Helicopters AW139, #31374
  
- I-TNAA → Airbus Helicopters AS350B3 (\*aerial work only)
- I-TNLD → Airbus Helicopters AS350B3 (\*aerial work only)

Main operating base: Trento-Mattarello "G. Caproni" airport (LIDT)

# AS365N3



- DOM: 2001
- configuration:
  - Goodrich (90m) Rescue Hoist
  - Bucher HEMS installation

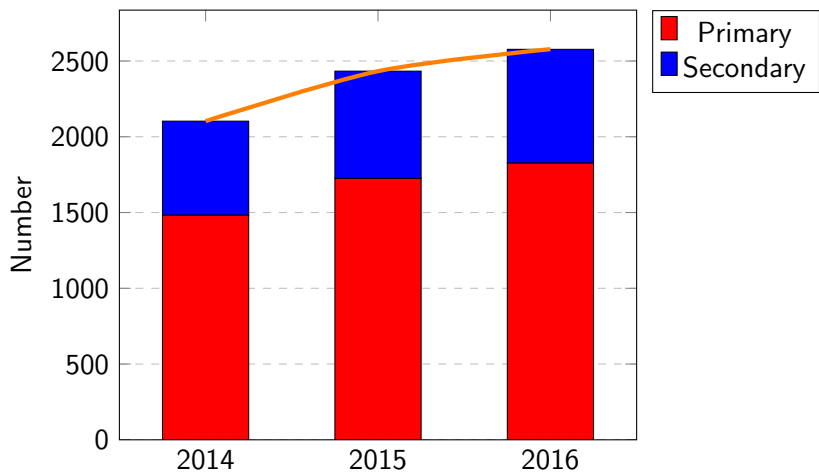
## AW139



- DOM: 2011
- two A/C same configuration:
  - Breeze-Eastern (90m) Rescue Hoist
  - Aerolite HEMS installation
  - Primus EPIC Phase 6.2
  - Incubator ATOM 808
  - TETRA radio with GPS location

# Data Analysis - 1

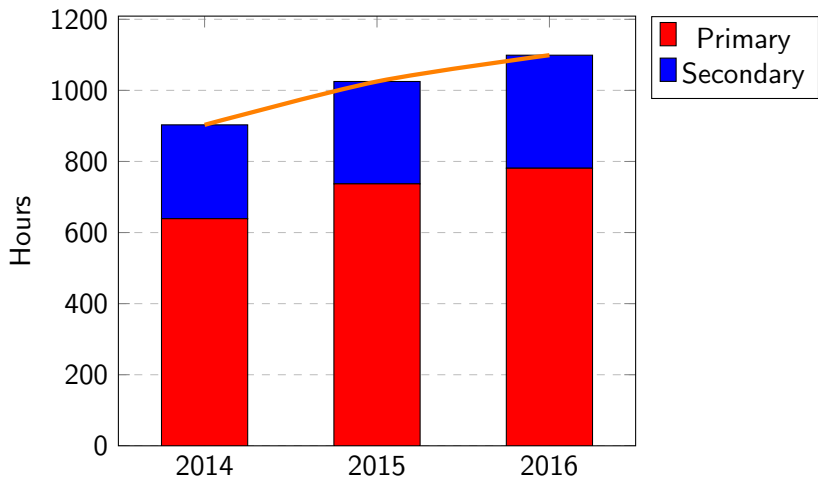
## Missions performed (last three years)



(data up to 31/10) projected

## Data Analysis - 2

Flight hours (last three years)



(data up to 31/10) projected

# Trentino



- Residential Population: 538.223 (2015)
- Overnight stays:  $\sim 13.000.000$  (winter 2015/2016)
- Overnight stays:  $\sim 17.000.000$  (summer 2016)

# Landform - 1

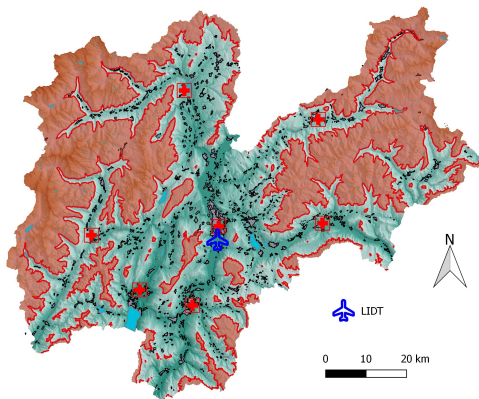


Figure: Elevation over 1500 m red highlighted

- Highest Point: Monte Cevedale 3899 m



## Landform - 2

- Residential Population over 1000 m: 18%
- Most tourist centre between 500 m and 1500 m
- Valleys (Val d'Adige, Val di Non, Val di Sole, Val di Fiemme, Val di Fassa,...)
- Helipad
  - 5 hospital night helipad
  - 11 strategical night helipad
- Central Hospital - Trento with night helipad

Only one VOR-DME (Trento airport LIDT) with limitations

*Usable sectors 5°/20° 195°/225° and 335°/360° with COV reduced to FL 140*

# GSA/EEX.0030/2015/11 - Project target

## LIMITED RADIO NAVIGATION AIDS

In order to guarantee H24 availability we need to improve HEMS capability

Project proposed to GSA (European Global Navigation Satellite Systems Agency) in order to participate to Grants funding mechanism.

There are two main targets:

- Design and validation of approach and departure procedures (supported by SBAS) serving Trento airport and helipad at Cles hospital + a specific point-to-point link (STAR) to connect the aforementioned IFP
- Upgrade Honeywell Primus Epic avionics to Phase 7

The expected impact:

- grant a safe helicopter H24 connection to specialized hospital center
- reduction cost of small hospital due to centralization

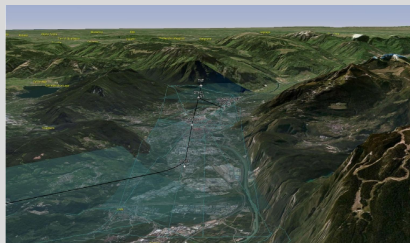
# Details

## Technical specifications AW139 Primus Epic Phase 7

- Capability of performing RNAV(GNSS)RNP approach operations
  - RNP Approach 0.3
  - RNP Missed Approach 1.0
- Complying with AMC 20-26, 20-27, 20-28
- Upgrade planned on January 2017

## Route

Route is developed by Aeroporto Caproni s.p.a. (Trento airport management company)



# Funding

European funding mechanism is well known but not so easy to understand.

## GSA funding mechanism

- Total cost: 659 751€
- GSA contribute: 313 729€
- Report throughout the entire project
- Deadline: July 2017
- Challenging cooperation between administrative department and technical department in order to achieve targets on time
- Bureaucracy

# Strategical Scenario

The scenario after the end of the project will be

## Rescue

- Routes and internal procedures for all helipads
- Integration with NVG capability (mid/end 2017)
- Improve reliability, safety and efficiency of HEMS service
- Reducing rejected missions
- Improve overall efficiency of HEMS service

# Next Steps

Improve searching people could be the next target to achieve. For this purpose, in some situation, manned helicopter could be too risky to use.

## Search

- Testing UAV(unmanned aerial vehicle) for searching purpose
  - Aeronautical standard
  - Long endurance
  - All-weather
  - Ceiling 15 000ft
- integration with manned helicopters  
*Search*  $\Rightarrow$  Unmanned & *Rescue*  $\Rightarrow$  Manned
- Searching devices

*Thank You for your kind attention*

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