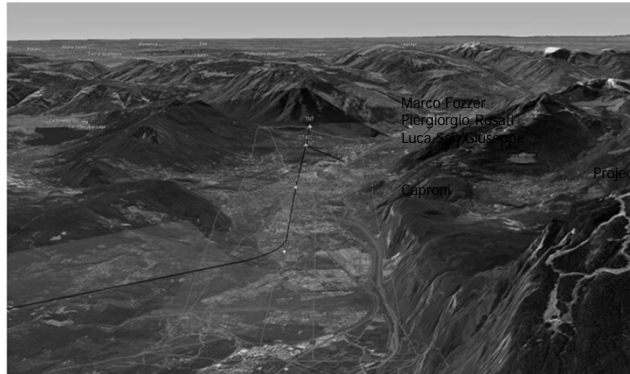


PBN (EGNOS) Procedures for HEMS Operations: "A network for Helipads in the Trento Province"



Marco Fozzer
Piergiorgio Rosati
Luca San Giuseppe



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Aeroporto Gianni Caproni company

Aeroporto Gianni Caproni Company was born in 1988, it's the airport management company of Trento Airport (LIDT).

Since 2009 the company was certified as an ATSP.

Since 2010 the company manages all strategic HEMS helipad of Trento province. (17 – 2017).

More than 100 aircraft are based on the airport and more than 20.000 movements/year.

Since 2015 started a project for the EGNOS adoption in aviation call financed by GSA.

In December 2017 the company merged with Trentino Trasporti S.p.A.



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Piergiorgio Rosati
Luca San Giuseppe



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PAT Nucleo elicotteri 1/2

PAT Nucleo elicotteri was born in 1959, it's one of the first organization for helicopter mountain rescue in Italy.

It's the solely HEMS operator in Trentino with a fleet of 5 helicopters. (2 AW139, 1 AS365, 2 AS350)

Main operating base Trento-Mattarello (LIDT), 24/7 availability. (2 during daylight , 1 on night)



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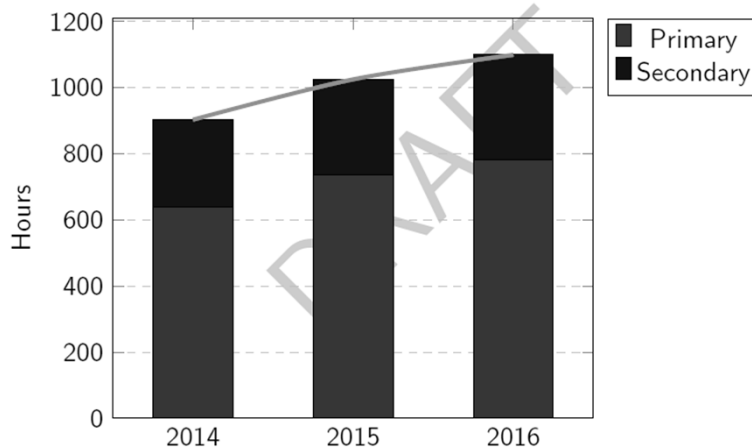


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PAT Nucleo elicotteri 2/2

Flight hours (last three years)



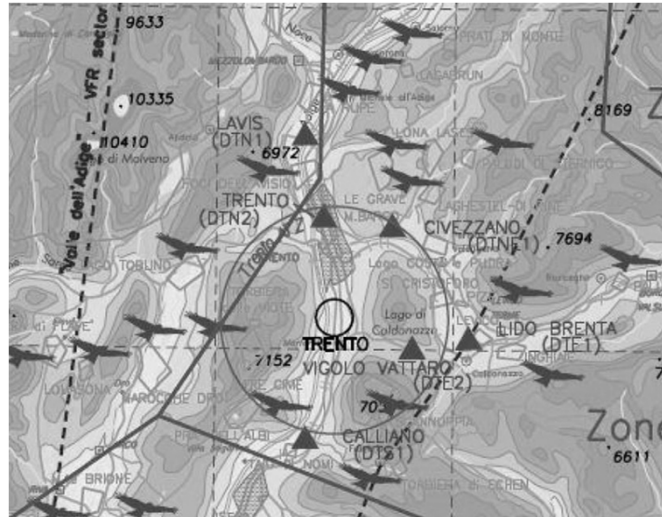
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Current Scenario 1/2



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Current Scenario 2/2

- Trento Airport: VOR RWY18 Approach Procedure with high meteorological minima and penalizing OCA/H values;
- Helipad operations only in VFR and VFR/N.



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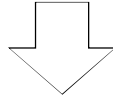


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Project

Design and operational implementation of a PBN Procedures network to connect Trento Airport and the main Helipads of Trento Province.



Ensure the Effectiveness and
Increase the Safety level of HEMS Operations.



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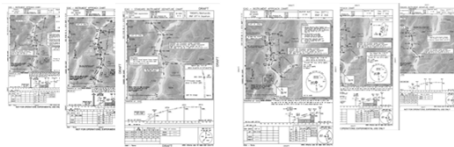
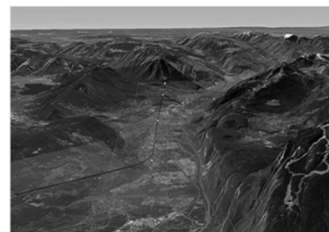
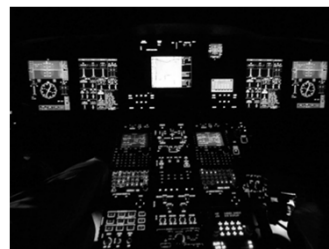


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STEP 1 – Experimentation

- Software Upgrade for Helicopters (AW 139);
- Design and on-site Validation of PBN procedures connecting Trento Airport and Cles Helipad;
- Approval and Publication of the procedures.



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Luca San Giuseppe

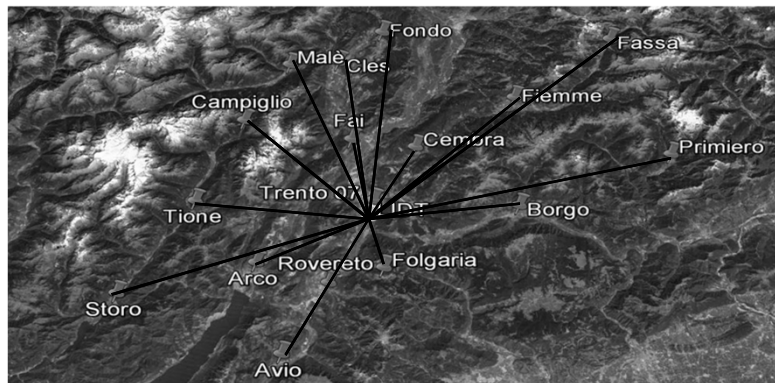


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STEP 2 – Project Follow-Up

Design and Operational Implementation of a PBN Network (supported by EGNOS) for all the HEMS Helipads of Trento Province.



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Partners 1/2

- **CAPRONI:** Promoter and coordinator of the project, safety assessment (LIDT);
- **GSA:** Financial support 60%;
- **ENAC:** Support on regulation aspects, support through flight validation and final approval;
- **ENAV:** Design procedures, flight validation and safety assessment;
- **Nucleo Elicotteri:** Pilot and helicopter support;



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Partners 2/2

- **Leonardo:** Helicopter upgrade, pilot PBN training, FMS database preparation through Honeywell and technical support for flight validation (pilot after specific course for flight validator and technician);
- **Pildo:** Perform a 2th flight with Platero on board to register during flight validation the accuracy of EGNOS signal to perform a flight data report.



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STEP 1 – Estimate budget



Request for participation and GSA relations
an report

Project coordination (Marco Fozzer)
AFIU coordination and safety study (Luca
San Giuseppe)
Procedures design, flight and ground
validation (Subcontractor ENAV)
Follow-up procedures certification (ENAC)

Estimate budget € 105.099,32



Upgrade Honeywell software two AW 139
(Subcontractor Leonardo Helicopters)

Flight validation contribute
Pilot training
Operational Experimentation

Estimate budget € 522.881,76



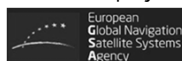
GSA contribution € 63.059,59

GSA contribution € 313.729,06

Estimate end of the project 30/06/2017



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Piergiorgio Rosati
Luca San Giuseppe



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Not always as planned (05/03/2017)

- No fatalities, minor injuries;
- Substantial damage.



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STEP 1 – Estimate budget after accident



Request for participation and GSA relations
an report

Project coordination (Marco Fozzer)
AFIU coordination and safety study (Luca
San Giuseppe)
Procedures design, flight and ground
validation (Subcontractor ENAV)
Follow-up procedures certification (ENAC)

Estimate budget € 105.099,32



Upgrade Honeywell software ~~two~~ one AW
139 (Subcontractor Leonardo
Helicopters)

Flight validation contribute
Pilot training
Operational Experimentation

Estimate budget € 522.881,76
~~358.881,76~~



GSA contribution € 63.059,59

GSA contribution € 313.729,06
~~215.329,06~~

Estimate end of the project ~~30/06/2017~~ 31/12/2017



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Status of the project 1/2

- 1 AW 139 software upgraded to Epic Phase 7, by Leonardo Helicopters;
- ENAV designed the following PinS procedures:
 - Trento/Mattarello RNP Y166;
 - Trento/Mattarello RNP Z166;
 - Trento/Mattarello RNP DT714 departure;
 - Cles (DT71) RNP Y356;
 - Cles (DT71) RNP Z356;
 - Cles (DT71) RNP DT701 departure;
- ENAV, ENAC, Leonardo, Nucleo Elicotteri and Pildo performed the flight validation on 12th October 2017;



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Status of the project 2/2

- Safety assessment complete (ENAV and Caproni);
- Procedure charts update to integrate Remarks by flight validation Pilots.
- Safety requirements resolution in progress.



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Environmental condition

- Trento Airport and Cles Helipad are in G airspace but in "RMZ" VFR sector "Valle dell'Adige";
- Procedures reserved for HEMS operation and operator authorized by Caproni company (specific condition see SR);
- Cles helipad equipped with a not certify meteorological station and webcam;
- Trento airport equipped with certify meteorological station;
- OCA/H increased for possible error of remote QNH;
- ...



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Safety requirement (ENAV-Caproni)

- Publication of the procedure on AIP AD 2 and AD 3 (new section for helipad);
- Procedure usable only with EGNOS;
- Contingency procedure implemented by the HEMS operator;
- HEMS operator choose the correct system for meteorological information (webcam accepted);
- Procedure available only with Trento AFIS available;
- Caproni company will perform some workshop with local VFR pilot.
- 6 month of experimentation in VFR condition...



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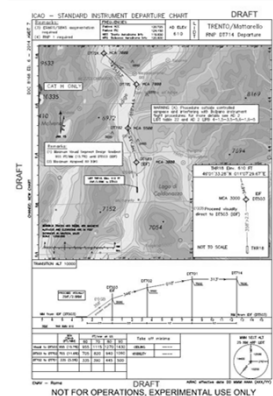
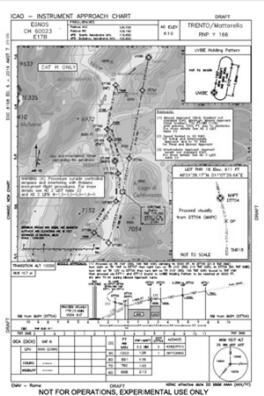



Trento/Mattarello LIDT

RNP Y166

RNP Z166

RNP DT714 dep



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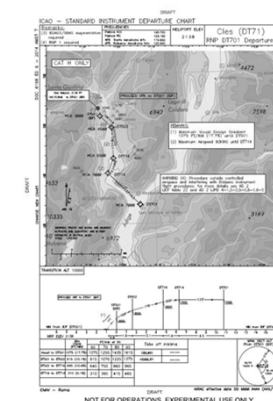
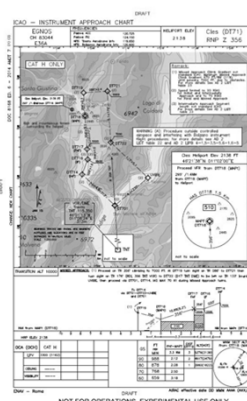
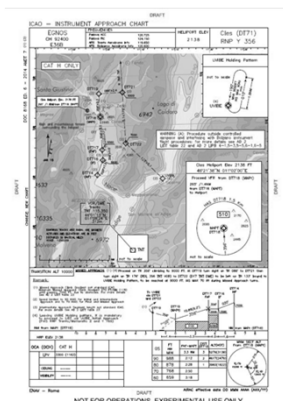



Cles Helipad

RNP Y356

RNP Z356

RNP DT701 dep



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Deviation from ICAO DOC 8161, Vol. II

1. The climb gradient, applied for the Missed Approach Segments, is higher than the standard of 4.2%;
2. The length of the Segments is not always compliant with the minimum/maximum values;
3. The Visual Segment Descent Angle (VSDA), for the PinS Approaches, is higher than the maximum value of 8.3°;
4. The MSA is not based on a single sector.

TRENTINO TRASPORTI
 Marco Fozzer
 Piergiorgio Rosati
 Luca San Giuseppe



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Procedures approved for publication

Publication approved by ENAC on 30/11/2017,
 publication will be performed after safety requirements
 implementation.

ENAC PROT-30/11/2017-021463-P

ENAC
 Ente Nazionale per l'Aviazione Civile
 Direzione Generale Spazio Aereo

A. Aeroporto Gianni Capone S.p.A.
 Impedimento all'implementazione

Oggetto: Aeroporto Gianni Capone S.p.A. - Procedure PWS Trento Cles

Con riferimento alla richiesta inoltrata in data 25 novembre u.s., in esito alle possibili valutazioni di sicurezza per la modifica di alcune procedure operative del sistema, si comunica che, ai sensi del comma 5 dell'articolo 3 del Regolamento ENAC "Procedure Strumentali di Volo", la procedura esaminata è stata:

- TRNTO/Materiale RNF 02714 Departure,
- TRNTO/Materiale RNF 2 180,
- Cles (DTT) RNF 02701 Departure,
- Cles (DTT) RNF 2 180,
- Cles (DTT) RNF 2 180.

Non è stato ritenuto opportuno e non è possibile alla implementazione operativa.

Si rende noto che, al fine della pubblicazione in AIP:

- dovranno essere rivedute le azioni previste dall'art. 4 comma 2 del Regolamento ENAC "Procedure Strumentali di Volo" per l'approvazione di criteri di progetto diversi da quelli di cui all'art. 4, comma 1,
- dovranno essere riveduti i limiti regolamentari individuali degli aerei di Safety "Procedure PWS in Spazio (PWS) RNF" per l'approvazione di limiti di Integrità di Cles" (art. 12 del DTI/2012) relativi alla PWS "Procedura strumentale RNF" per l'arrivo - Aeroporto di Trento-Mattarello" (art. 12 del DTI/2012) relativi all'Aeroporto Cles,
- dovrà essere modificata una procedura con finalità di difesa per un SID/STD, dovranno essere operate inoltre le condizioni meteorologiche di ufficio per la PWS, per un periodo di sperimentazione di 6 mesi, occorre a tal fine essere prestata particolare attenzione alle performance dei GADS rilevate durante i voli.

Al termine del periodo di sperimentazione, dovranno essere portati all'attenzione dell'ENAC i risultati ottenuti, con evidenza dei volti e delle eventuali critiche riscontrate, al fine di individuare possibili azioni correttive, le quali, come necessario, sono state pubblicate senza limitazione alla PWS.

Cordiali saluti

Il Direttore
 Ing. Salvatore Iacono

(documenti informativi) (risultati digitalizzati)
 al sensi dell'art. 343 del D.Lgs. n. 33/2013 (s.u. n. 1)

Info Segreteria: Viale Capone-Strada, 118
 38100 Trento - Tel. 0461/221111
 Fax: 0461/221111
 e-mail: info@enac.it
 www.enac.it


Info Ufficio Spazio Aereo:
 Via S. Maria Maddalena, 1
 00187 Roma - Tel. 06/498111
 Fax: 06/498111
 e-mail: spazioaereo@enac.it
 www.enac.it

TRENTINO TRASPORTI
 Marco Fozzer
 Piergiorgio Rosati
 Luca San Giuseppe





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Questions?




 Marco Fozzer
Piergiorgio Rosati
Luca San Giuseppe


 European
Global Navigation
Satellite Systems
Agency

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The end

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