



**OWS 27NOV18**



# SHARP TURNS

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MINISTÈRE  
DE LA TRANSITION  
ÉCOLOGIQUE  
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DSNA

Direction générale de l'Aviation civile

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# Typical example (DSNA Performance unit scanning program)

Plans de vol aberrants - Mozilla Firefox

Amelia Client Leger | OUILLADE, Marie Christin... | Plans de vol aberrants

pixar.ath.dsna-dti.aviation/badturns

Rechercher

Accueil | TrajPlans de vol | Routes aberrantes | dsna.fr

22/07/18 | 22/07/18 | < Go > | Enreg. le CSV | Indicatif | Départ | Arrivée | ACC | Alti min | Angle min | Dist min

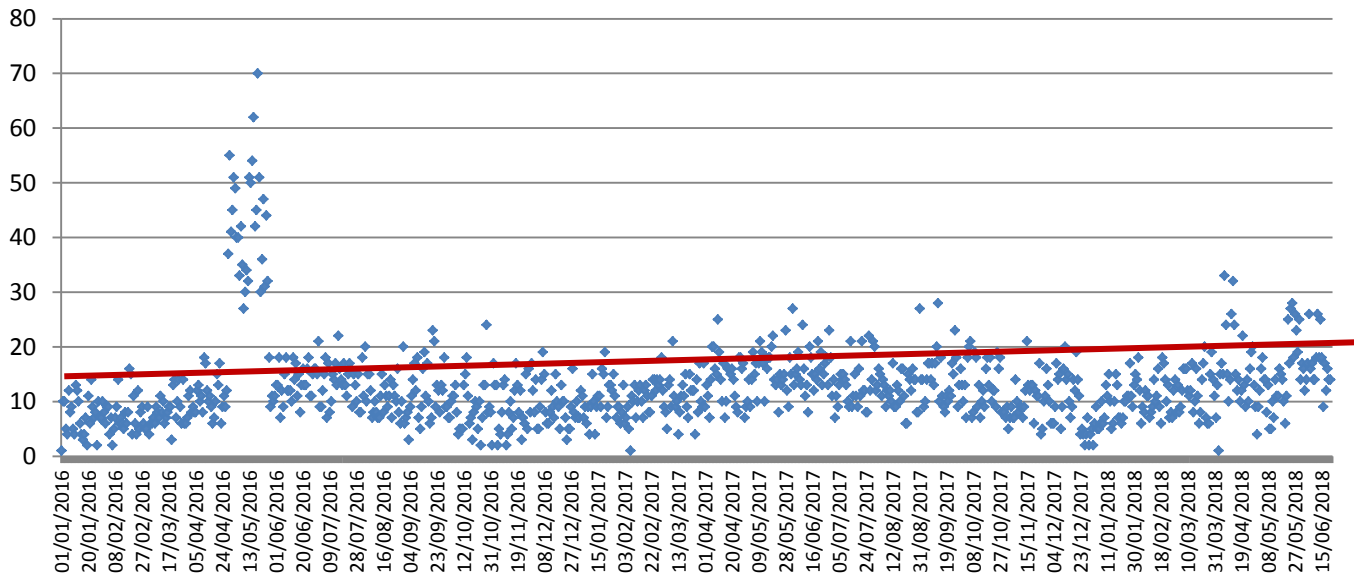
Date	Indicatif	Id ifps	Départ	Arrivée	Nb. err.	Virage	Balise	Altitude	Alt. max	Dist. dép.	Dist. arr.	Dist. ortho. dép.	Dist. ortho. arr.
2018-07-22	OOPCJ	AA03864113	EBCI	LFTZ	2	97.861182	*0NIZ	11000	27000	505	60	400	77
2018-07-22	OOPCJ	AA03864113	EBCI	LFTZ	2	100.62169	KOKIN	11000	26000	545	70	458	67
2018-07-22	OOPCJ	AA03864113	EBCI	LFTZ	2	97.861182	*0NIZ	11000	26000	528	87	445	77
2018-07-22	HBLTZ	AA03864988	LSZA	LFTZ	3	100.62169	KOKIN	11000	19000	223	69	170	67
2018-07-22	HBLTZ	AA03864988	LSZA	LFTZ	3	97.861182	*0NIZ	11000	19000	206	86	154	77
2018-07-22	HBLTZ	AA03864988	LSZA	LFTZ	3	93.997757	AMGEL	17000	19000	163	130	145	54
2018-07-22	THY7WR	AA03902078	LFBF	LTBA	2	105.370388	TINOT	37000	39000	334	1153	290	1052
2018-07-22	THY7WR	AA03902078	LFBF	LTBA	2	164.717767	MTG	37000	39000	278	1210	264	1061
2018-07-22	ADB5705	AA03881545	LFLEX	ORBI	1	95.382887	ADABI	22200	33000	67	2595	52	2131



# High level analysis (French Airspace)

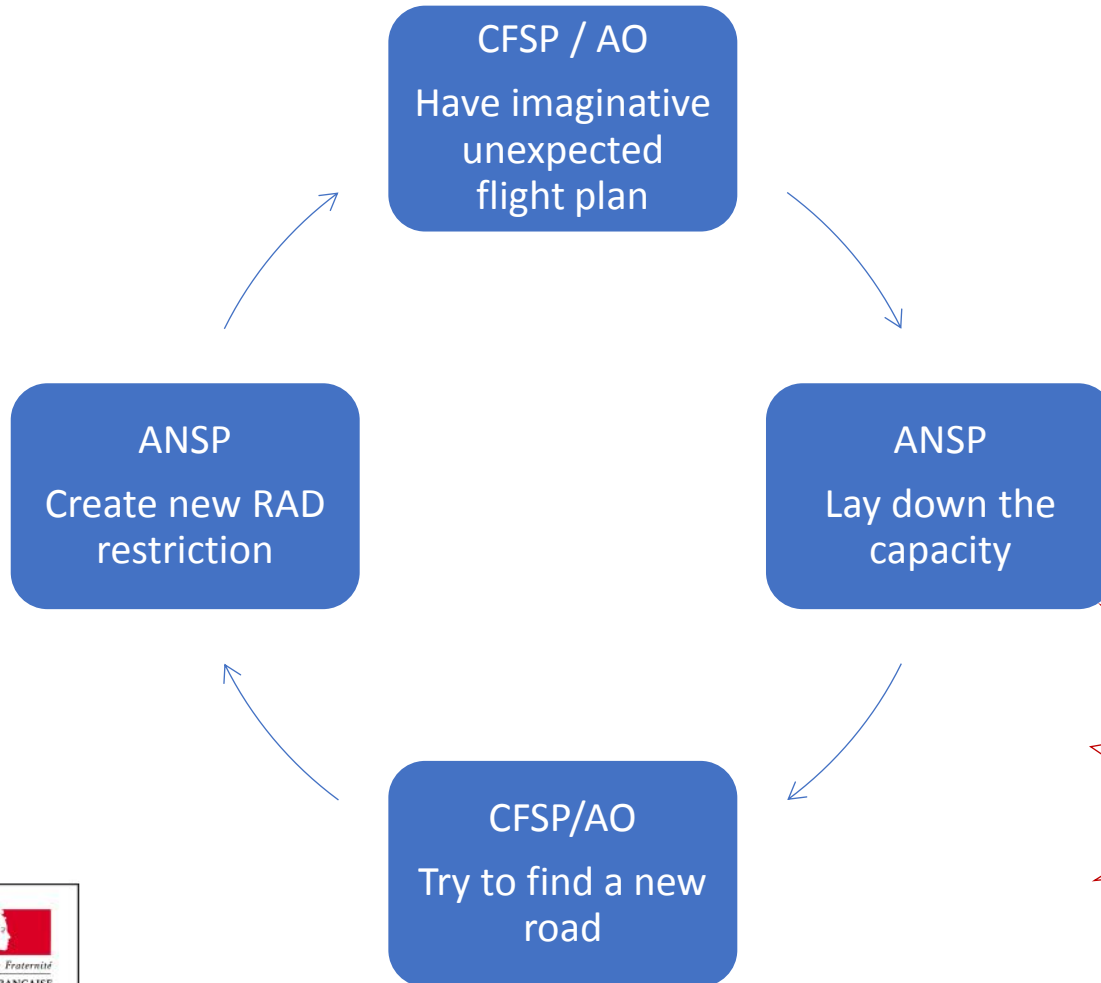
- 2 years follow up :
  - turn above 90° in the last validated FPL
  - above FL200
  - 60 NM away from departure or arrival

*An average of 15 flights per day in France*





# Sharp turns : a lose-lose situation



**French part of RAD :  
250 restrictions to avoid  
sharp turns above 90°**





# Why ANSPs try to prevent unexpected sharp turns

✓ Controller hasn't identify the turn

➤ **Safety issue**

✓ Controller has identified the sharp turn

- Why such a turn? => loss of time
- Shall he modify the route ?
  - NO => have to include an unexpected flow
  - YES => make a new flight plan, can impact new sectors
  - Consequences :
    - **Overload for the control and the pilot**
    - Electronic tools are no longer efficient
    - Flight counts are false





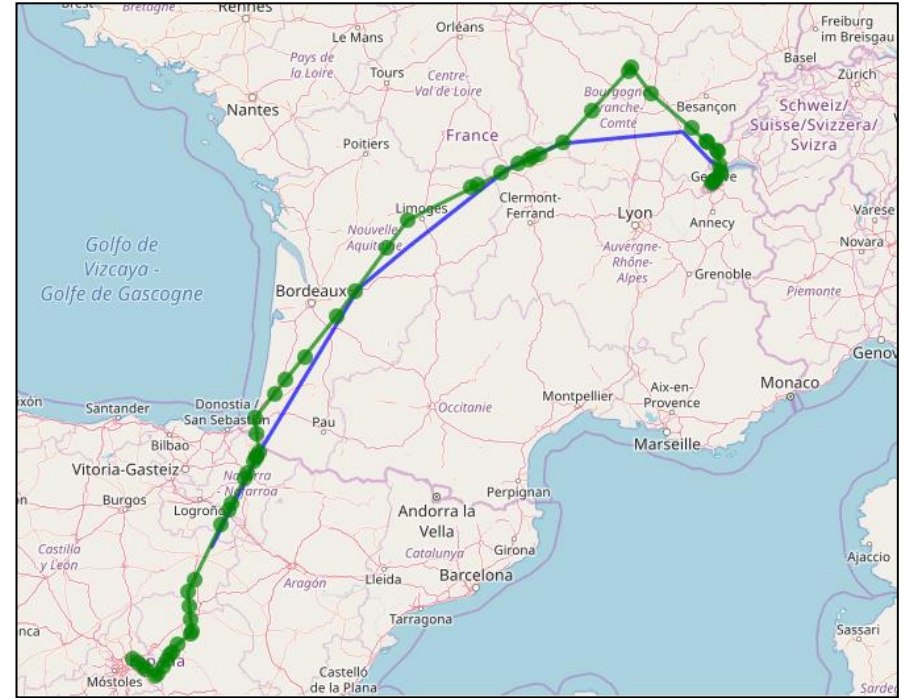
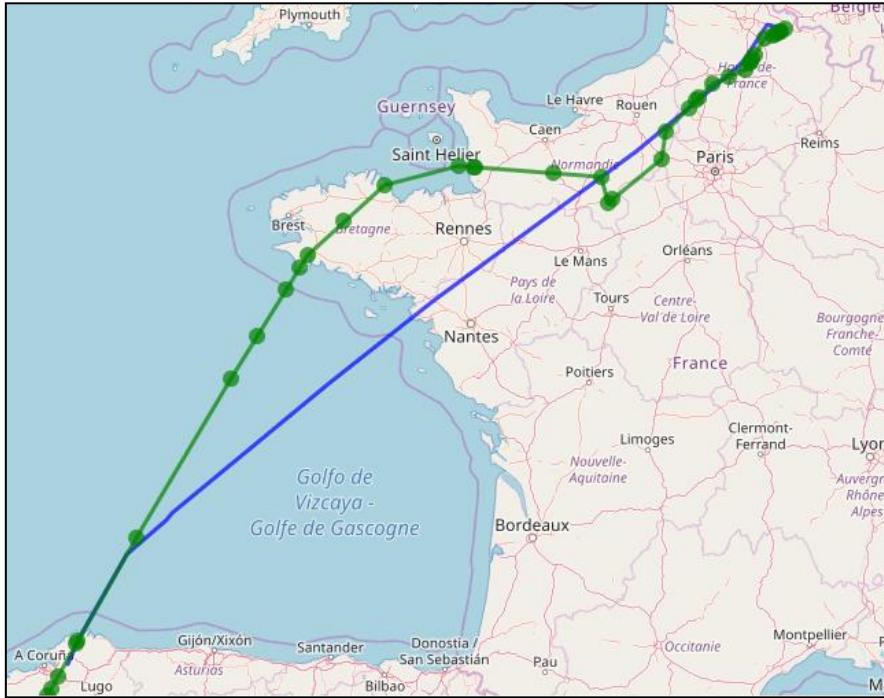
# Cycle 07/18 French Airspace : detailed analysis

- More than 1000 FPL identified with sharp turn (above 90°, above FL195)
- 700 are due to complex connexion between FIR and UIR or to SID STAR
- 150 are due to flight trying to avoid an area with a lot of delays
- 50 are circular flights or FPL with a STAY mention
- 100 are “strange” flights





# To avoid delays



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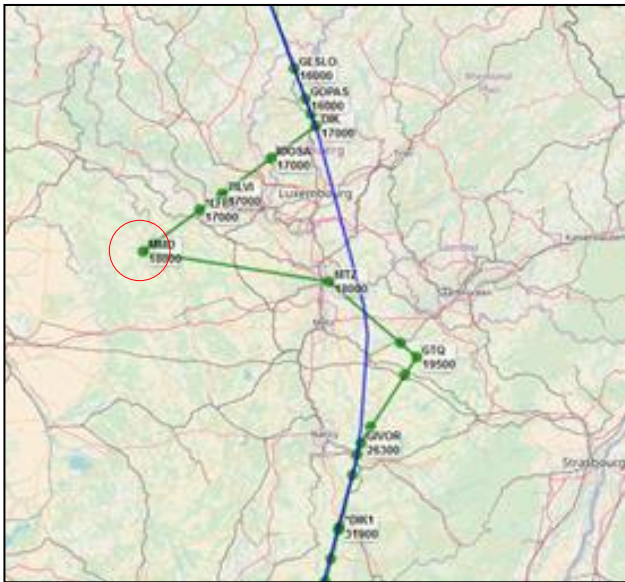
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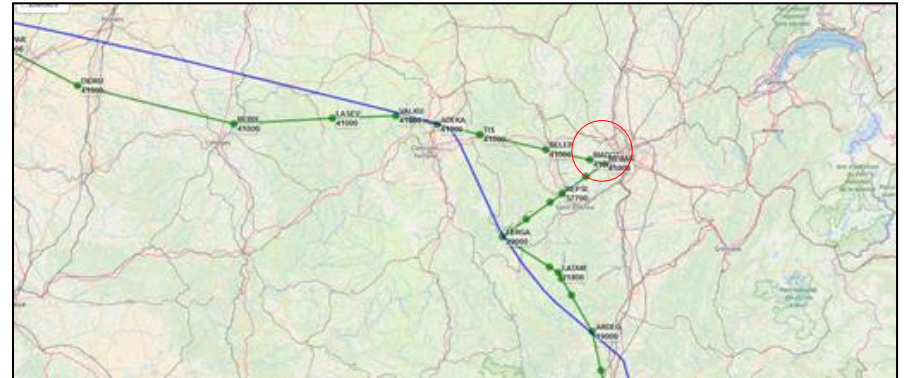
# Some of 100 strange flights

20180703 ETH3717 DNMM EBLG +80 NM  
 20180710 ETH3721 DNMM EBLG +80 NM

FIR N852 et UIR UN862DIK GTQ



20180629 TSC424 CYUL LFML  
 20180628 TSC434 CYUL LFML  
**ADEKA UZ161 LERGA +50 NM**



20180717 LBT526 DTTJ LFQQ A320  
**VANAD UN874 SULEX +30 NM**







# SC Ops Propositions (NM level)

- 1- **Check and reject** any flight plan with a turn above 90° **unless**
  - RFL below FL 245
  - Circular flight or FPL with a “STAY” mention in the road

**In return, ANSP would cancel RAD restrictions to avoid sharps turns**

2- **Authorize** a list of **predefined routes** with sharp turns to avoid an overcrowded area (disruptions, special event, ...)

- Prepared in collaboration with the different ACCs
- Valid all time / part time
- With a defined maximum capacity





# Thank You !



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