Context of Fatigue Risk Management in France

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RÉPUBLIQUE FRANÇAISE

Ministère de l'Écologie, du Développement durable et de l'Énergie

dgac

DSAC

Direction générale de l'Aviation civile

Ministère de l'Écologie, du Développement durable, et de l'Énergie

Context of FRM in France

1. French regulatory context prior to the application of AIR OPS
2. Role of the DSAC (French CAA)
3. Current picture of FRM
4. AIR OPS and FRM

Context of FRM in France

1. French regulatory context prior to the application of AIR OPS (1/3)

« Arrêté » and « instruction » SMS published on the 22d of Dec 2008 (equivalent to a regulation and advisory circular) - Main elements (TBC)

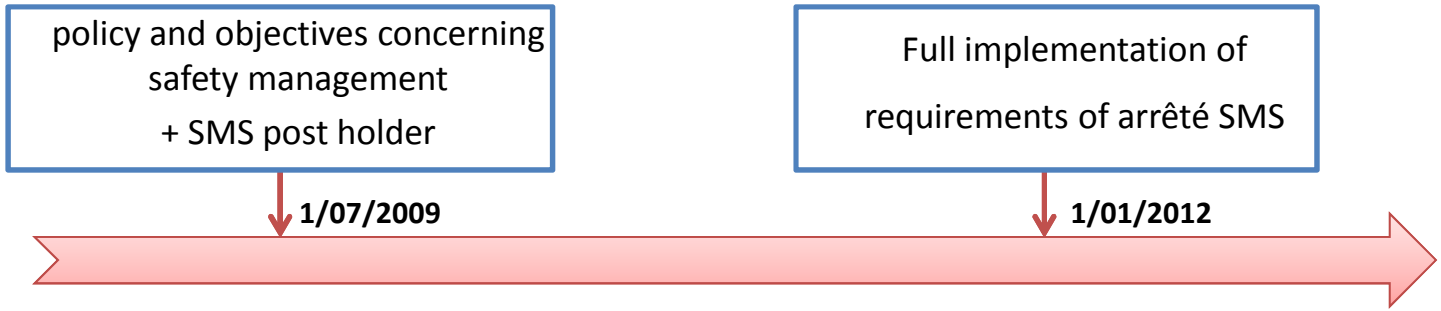
- Who : AOC and part 145 holders
- What :
  - Definition of safety policy and objectives
  - Safety management : Hazard identification (predictive/reactive) ; risk assessment, risk acceptability and risk mitigation
  - Safety assurance : monitoring and performance indicators, change management
  - Safety promotion : training, education, communication
- How : acceptable SMS post holder under the responsibility of the accountable manager

Context of FRM in France

1. French regulatory context prior to the application of AIR OPS (2/3)

« Arrêté » and « instruction » SMS published on the 22d of Dec 2008 (equivalent to a regulation and advisory circular) - Main elements

- Milestones



Context of FRM in France

1. French regulatory context prior to the application of AIR OPS (3/3)

« Arrêté » and « instrcution » FTL published on the 25th of March 2008

- Completes EU OPS (until at least February 2016) for items not regulated by subpart Q
- Gives prescriptive rules for split duty, time zone crossing compensation, reduced rest, flight duty period extension due to in-flight rest, standby
- Requires SGS-RF (meaning Fatigue Risk oriented safety management) for :
  - ❖ Split duty
  - ❖ Reduced rest
  - ❖ Ultra Long Range today defined as FDP of more than 18 hours
- Since 2008, SGS-RF (FRM) seen as a part of the SGS (SMS)

Context of FRM in France

2. Role of the DSAC (French CAA) (1/5)

« Arrêté » and « instruction » FTL published on the 25th of March 2008

- Classical oversight but …
- …also support to the development of FRM within concerned operators

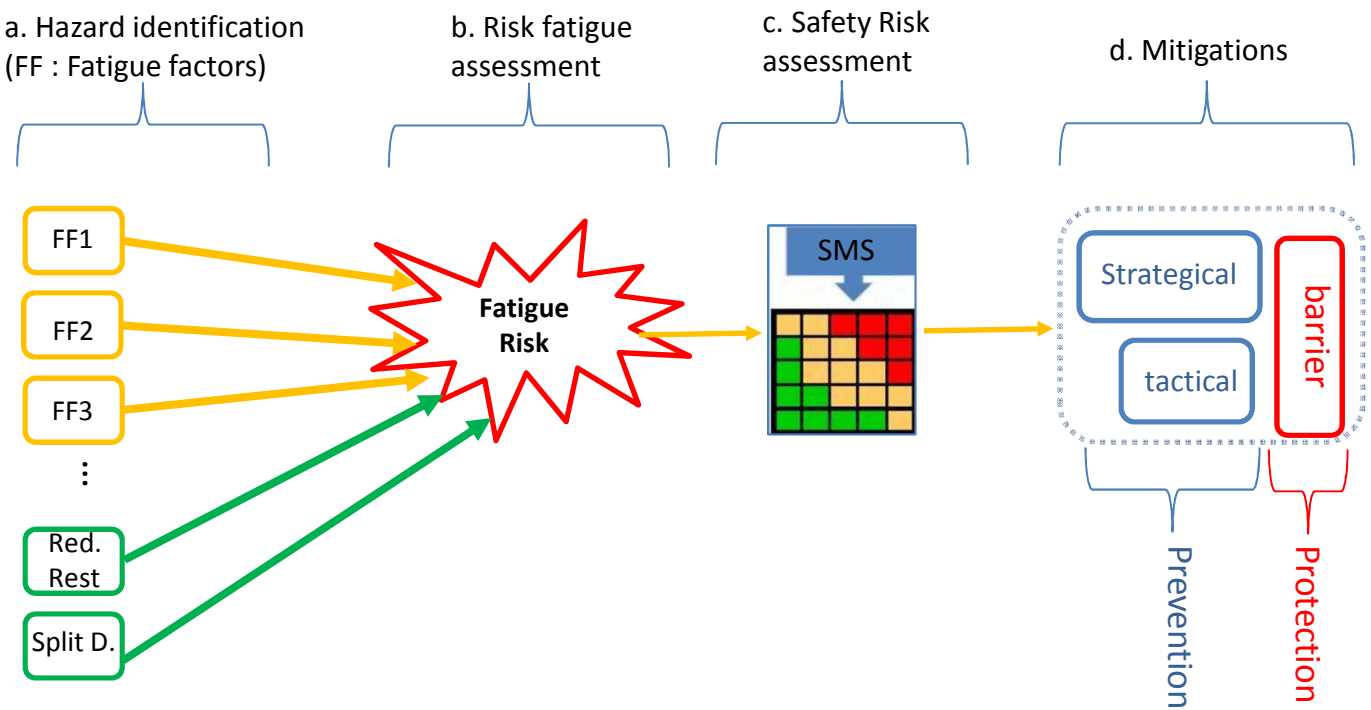
Study report on FRM within French Regional Airlines i n 2007-2010 aiming at :

- ❖ Determining sensitivity of existing indicators to fatigue, hence their possible relevance in a FRM context : **ASR, FDM events**
- ❖ Targetted study : crew **survey** and flight-related **data collection** (actigraphy + qualitative inquiry)

➡ **Recommendations for the implementation of FRM**

Context of FRM in France

2. Role of the DSAC (French CAA) (2/5)



FF : fatigue factor

Context of FRM in France

2. Role of the DSAC (French CAA) (3/5)

a. Hazard identification : Factors related to

- circadian/biological rhythm : early starts, split duty, reduced rest, TZ crossing…
- Operating conditions (incl. workload): # sectors, FDP length, AD classification, weather conditions, aircraft swap, ground handling, hotel at destination…

b. Risk fatigue assessment : combination of elemental fatigue factors. Fatigue/vigilance predictive tools may be used (schedule factors) +expertise needed for other factors (proactive, based on ASR…)

c. Safety risk assessment :

- Fatigue may increase the probability of a safety event OR/AND impact the management of a safety event (omissions, reaction time, memory etc)
- Use of SMS principles

Context of FRM in France

2. Role of the DSAC (French CAA) (4/5)

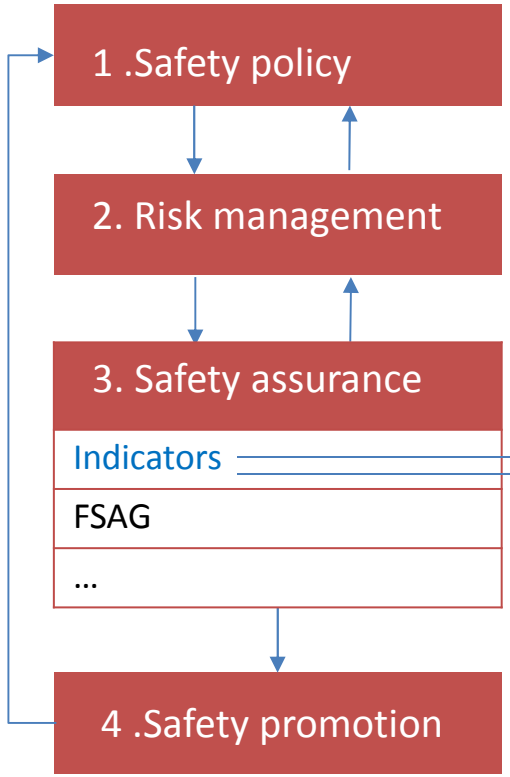
d. Mitigation

	Strategical	Tactical	Operational (real time)
Removal	Manager decides to interrupt certain operations	Rotation changed (e.g. following results of predictive fatigue tools)	Crew member does not start duty (not fit to fly)
Reduction	Manager considers the impact of remuneration policy on crew fatigue (so as to avoid that most profitable rotations be the more fatiguing ones)	Consider fatigue in crew planning (e.g. by integrating the use of predictive fatigue tools to change pre and post rotation rest)	Crew member uses strategies before the FDP starts (naps, sleep management) or after the FDP has started (controlled rest…)
Barrier	Training policy aiming at managing unforeseen excessive fatigue (detection of fatigue signs , understanding of the effects of fatigue on performance)	Modify procedures or create procedures more robust to fatigue (e.g. simplified procedures and paperwork)	Crew member uses strategies to prevent effects of fatigue (more /less automation, increased cross checks, earlier stabilization during approach…)

Context of FRM in France

2. Role of the DSAC (French CAA) (5/5)

- Indicators



Systematic monitoring

ASR *(ASR form such that information on fatigue is given either systematically or at commander's discretion)*

- *Qualitative analysis*
- *Quantitative analysis (trends)*

FDM events analysis *(correlation of events with fatigue needed)*

Many other indicators *(circadian+workload)*

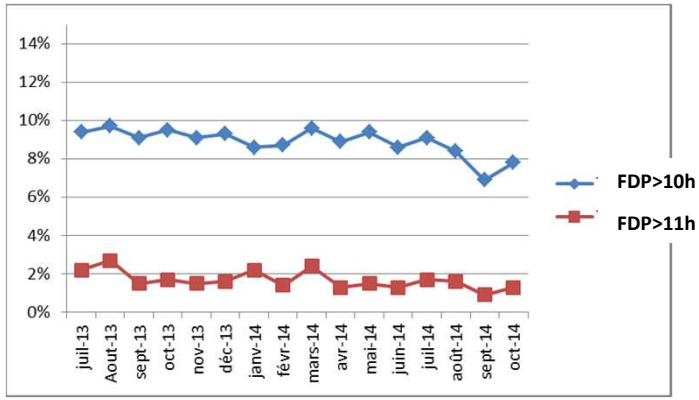
Targetted monitoring

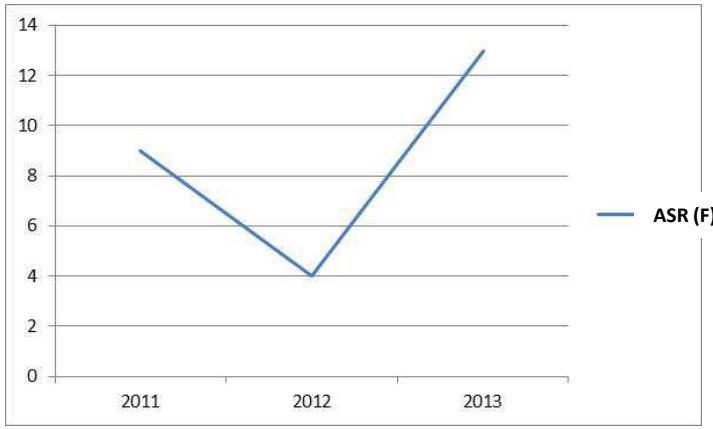
Crew surveys, crew interviews…

Context of FRM in France

3. Current picture of FRM

- In the framework of the French regulation, way FRM is implemented varies: short/medium haul vs medium/long haul – regular vs charter…
- Proactive hazard identification (e.g. : expertise from a fatigue standpoint before a new rotation is put in place) stands alongside reactive hazard identification (e.g. noisy hotel environment)
- Variety of indicators :





…

- Training of personnel already a fact

Context of FRM in France

4. AIR OPS and FRM (1/5)

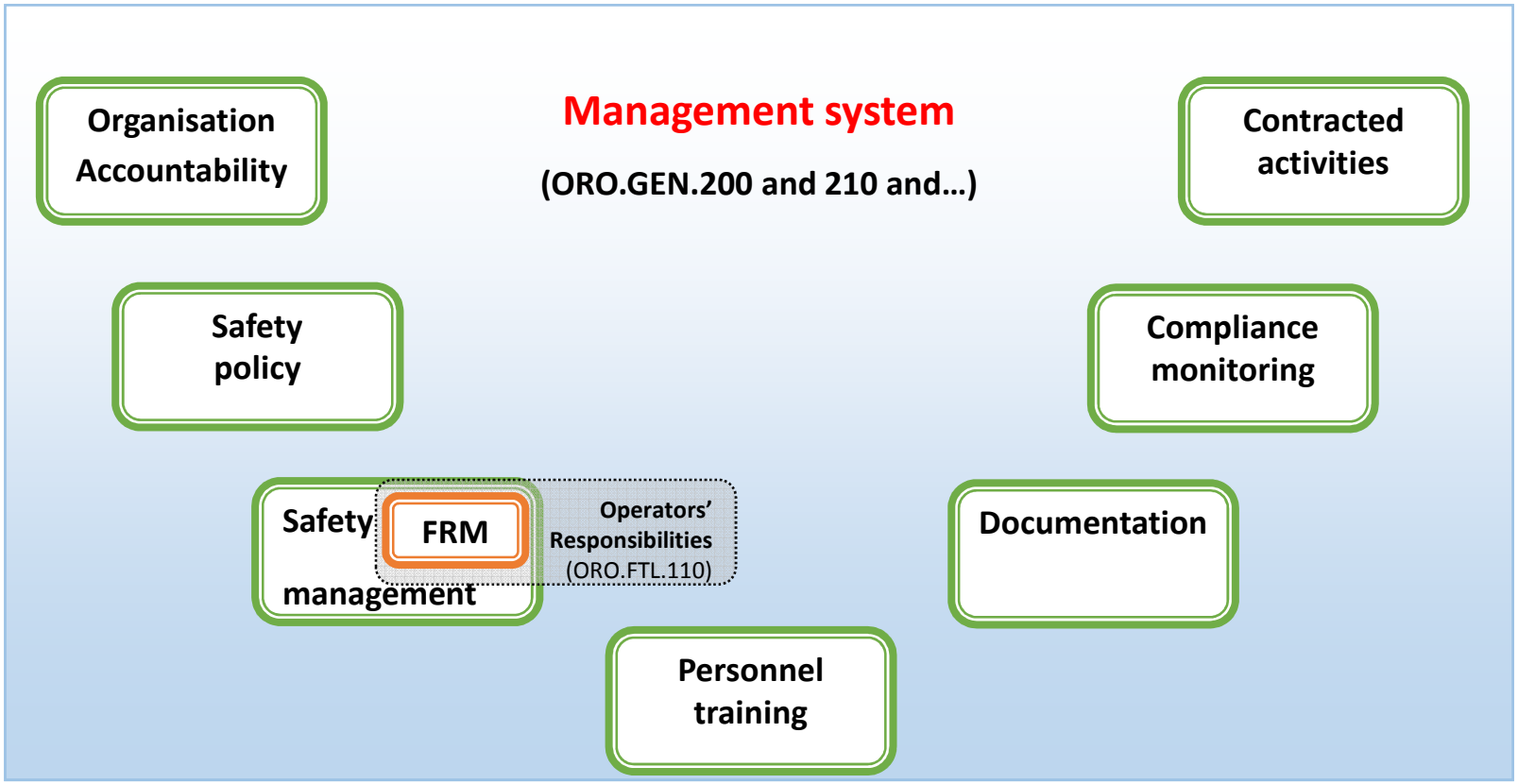
- Competent Authority to comply with ARO.OPS.235
  - ❖ Approval of FT specification schemes
  - ❖ Examination of individual CS scheme (under art. 22(2) of the basic regulation) – the competent Authority plays a very important role
  - ❖ Assessment of individual CS schemes after they have been implemented for confirmation, amendment or rejection
- Competent Authority to oversee the management system and approve FRM (included in the MS/FTL scheme) when FRM required :
  - ❖ FDP above 11h (1-2 sectors) if crew in an unknown state of acclimatisation (ORO.FTL.205(b)(3) Table 4)
  - ❖ Reduced rest (12 hours at home base and 10 hours out of base)

  (CS FTL.1.235(b) Reduced rest)

  And appropriate FRM principles to actively manage the fatiguing effect of night duties of more than 10 hours (CS FTL.1.205 Flight Duty Period (FDP))

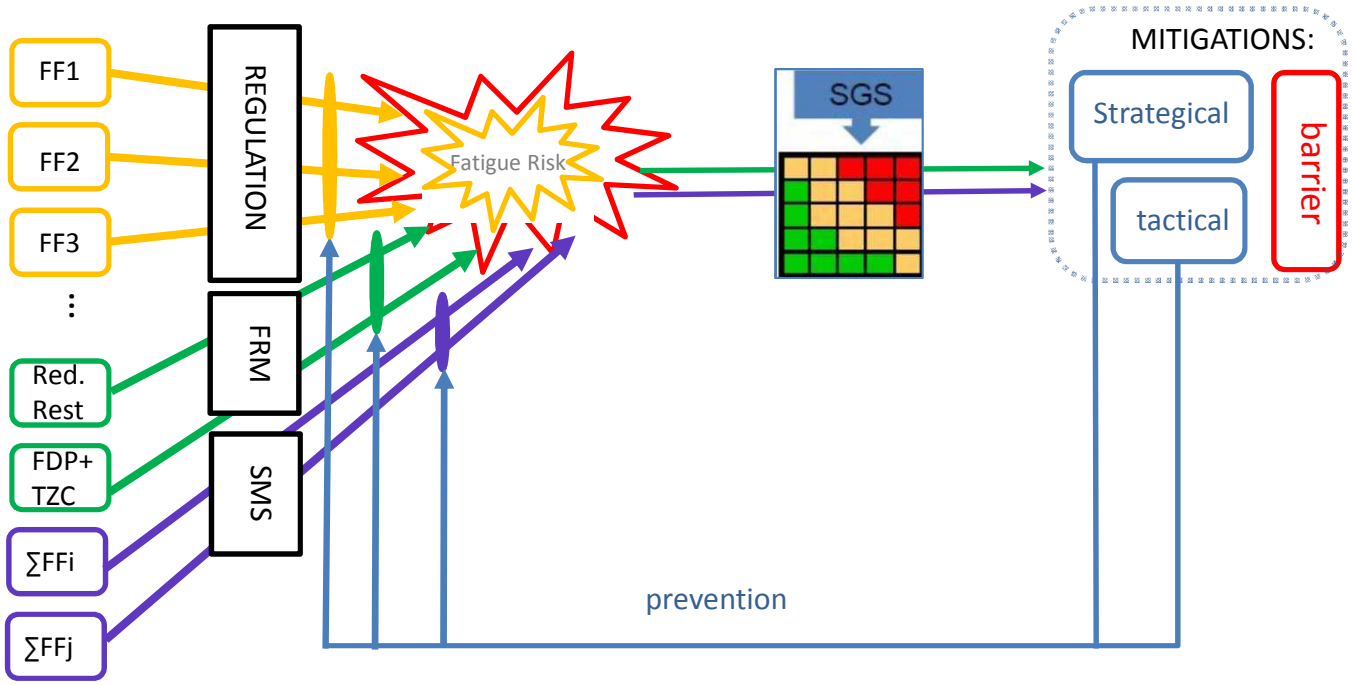
Context of FRM in France

4. AIR OPS and FRM (2/5)



Context of FRM in France

4. AIR OPS and FRM (3/5)



- FF : fatigue factor
- FDP+TZC : FDP11h for 1-2 sectors crew not acclimatised
- ∑FFj : combination of fatigue factors

Context of FRM in France

4. AIR OPS and FRM (4/5)

- French DSAC concerned by FRM in the context of reduced rest (HOP)
- Same questions as for any safety case :
  - ❖ risks identification / assessment / mitigation
    - Set of fatigue hazards known
    - Set of possible mitigation known
    - Which hazard/mitigations will have an influence on the operating conditions, hence fatigue ?
  - ❖ Development of indicators (TBC)
    - Which are relevant and robust for the individual scheme?
    - Thresholds and trends monitoring need a to be assessed against a nominal/reference acceptable situation/level

      E.g. : If for operator A, mean FDP = 6h00, and 9th decile is 7h30, an increase of that indicator is not problematic…

Context of FRM in France

4. AIR OPS and FRM (5/5)

- ❖ Development of indicators
  - Some are rather qualitative by nature (ASR) : they need close examination.

    E.g. : an increase in the number of fatigue related of ASR has to be carefully considered (might be related to good awareness and recent traing dor instance)
  - Some are more objective (FDM events wrt fatigue… if correlation with fatigue can be assessed)
  - Combination of indicators needed to grasp the fatigue risk

- ❖ Difficulty in determining the acceptable level of fatigue

➡ Comparative method may be used if samples available (OPS for which fatigue factor is present to be compared with OPS for which it is absent)

- ❖ IF FRM implemented in the framework of a deviation, future has already to be considered for possible confirmation of the deviation

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