INTRODUCTION

- Accident investigation
  - Important source of information to guide safety management priorities despite its reactive view on safety and the multiple pitfalls on the pathway to understand accident causation
- Accident causation in complex sociotechnical systems
  - A strong consensus in the literature to explain accident by the combination of multiple human and systemic factors
  - A need to shift from traditional sequential and epidemiological models of accident causation (focusing on component failures) to systemic models (focusing on interaction between components and performance of the system as a whole) (Hollnagel, 2004)
  - Despite the fact that systemic models appear more appropriate for modern complex sociotechnical systems, their use is lower than previous models (Salmon & All., 2011)

STATE AIRCRAFT ACCIDENT INVESTIGATION

- 2003: Creation of the Bureau Enquêtes Accidents Défense-Air [French State Aircraft Accident Investigation Board (SAIB)]
  - Around 30 members, including 10 technical investigators
- Review of the first 10 years of SAIB's activities (2003-2012)
  - Between 1 to 3.5 accidents per 100 000 flight hours each year
  - 194 investigations: 117 accidents, 77 serious incidents
  - Investigations mainly for: French Air Force (47%), Army (19%) and Navy (12%) proportional to aerial activity
  - According to SAIB: 80% of all identified causes are related to “human and organizational factors” and more than half being “unsafe acts” of front-line operators
- Human and Organizational Factors Investigations
  - SAIB safety investigators, SAIB's ergonomist (since 09/2014)
  - Armed Forces Biomedical Research Institute (on request of SAIB)
- 2013: Introduction, by the management of SAIB, of a French translation of the HFACS taxonomy (Wiegmann & Shappell, 2003) to standardize practices between safety investigators

OBJECTIVE

To compare the advantages, the limits and the quality of information gathered by two accident analysis methods
- Human Factors Analysis and Classification System (HFACS), derived from the Reason’s Swiss Cheese model (1990)
- AcciMap method derived from Rasmussen's risk management framework (Rasmussen, 1997)

METHODS

Qualitative study. Analysis of data available in one final safety accident investigation report from the SAIB, including cockpit voice recorder transcription, flight data recorder data, interview with air crew members, information on organizational context

DISCUSSION/PERPECTIVES

- Two complementary accident analysis methods
- Assessment of a French version of HFACS (validity, reliability)
- Applying AcciMap methods during investigations

REFERENCE