

# Benefits of Informed Decision-Making in the Aviation Industry

Col. Mark Wilson  
SSO Air Combat Plan,  
South African Air Force (SAAF)



science, technology  
& innovation

Department:  
Science, Technology and Innovation  
REPUBLIC OF SOUTH AFRICA



sa air force

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## SHOWCASING SESSION 1

### SHORT BIO

#### SAAF Strike Navigator

- Operationally qualified strike leader on Gripen
- A-Category Instructor
- Senior Staff Officer Air Combat Planning
- 2<sup>nd</sup> in Command of Space Command Implementation Planning Team (SCRIPT)

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## Benefits of Informed Decision-Making in the Aviation Industry

### Effects of Space Weather

- *Communication*
  - High Frequency (HF)
  - Very/Ultra High Frequencies (V/UHF)
  - Satellite communication (L band)
- *Navigation*
  - GNSS
- *Aircraft Avionic systems*
  - Single Event Upsets (SEUs)
  - Static buildup
- *Radiation*
  - Altitude
  - Polar regions



Space for  
Societal  
Resilience,  
Transformation  
and  
Intelligence

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## Benefits of Informed Decision-Making in the Aviation Industry

### Implications

- *Communication*
  - Air Traffic Management
- *Navigation*
  - Position/Timing/Navigation errors
- *Aircraft Avionic systems*
  - Complete/Partial failures
- *Radiation*
  - Increased exposure



## Benefits of Informed Decision-Making in the Aviation Industry

### Mitigations due to accurate Space weather forecasting

- *Avionic design*
  - Hardening
  - Redundancy
- *Flight planning optimization*
  - Minimise disruptions
  - Operational costs
  - Reduced radiation exposure
- *Decision support*
  - Maintain high safety standards
  - Reduce insurance and liability
- *Equipment lifespan*
  - Ground
  - Aircraft
  - Space



Thank You



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