

# Comparing Effectiveness of Counter Measure Techniques through Simulation

**Mr Matthys JU du Plooy (Thys)**

**CSIR, Defence Peace Safety & Security**

**Office Tel: +27 12 841 4880**

**Email: [tdplooy@csir.co.za](mailto:tdplooy@csir.co.za)**





# Presentation Summary

- Research Goals
- Simulation Consideration
- Simulation Scenarios
- Simulation Results
- Summary





# Research Goals

- Compare CM's
- Simulation as a evaluation tool
- Insight into influence of:
  - Height
  - Speed
  - Aspect Angle
  - Activation Time



# Simulation Considerations

- Accuracy of model blocks influence accuracy of results
- Low accuracy model blocks can be used for low frequency events
  - Flares, aircraft power changes, etc
- Higher accuracy model blocks required for high frequency events
  - DIRCM signals
- To comparing high and low frequency events
  - High accuracy models





# Simulation Scenarios

- Unlimited scenarios
- Aircraft
- Missile
- Four Counter Measures
- Points through aircraft's operational envelope
  - Speeds
  - Heights
  - Aircraft aspects



# Counter Measures

- Activation Times
- Flares
- DIRCM
  - Break Lock
  - Hard Kill
  - Steering





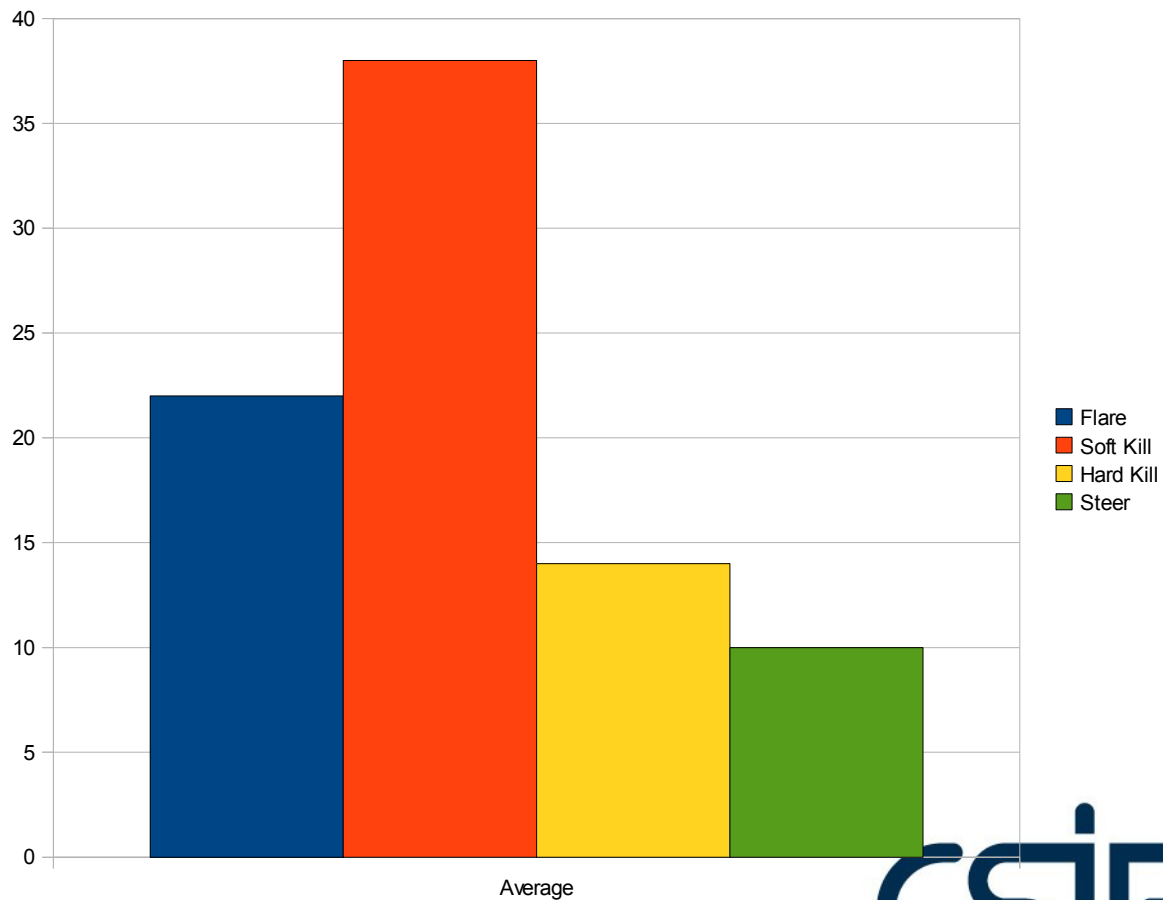
# Aircraft's Envelope

- Distance
- Speed
- Height
- Aspect





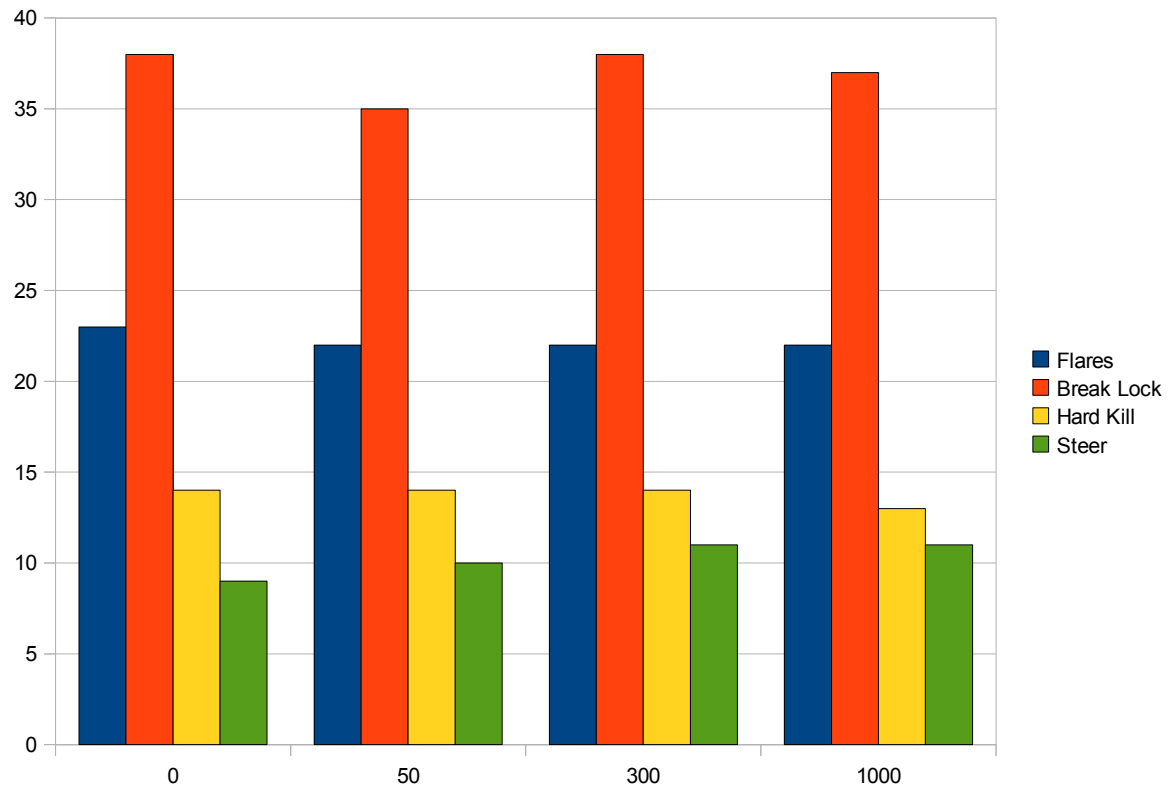
# Results - Average





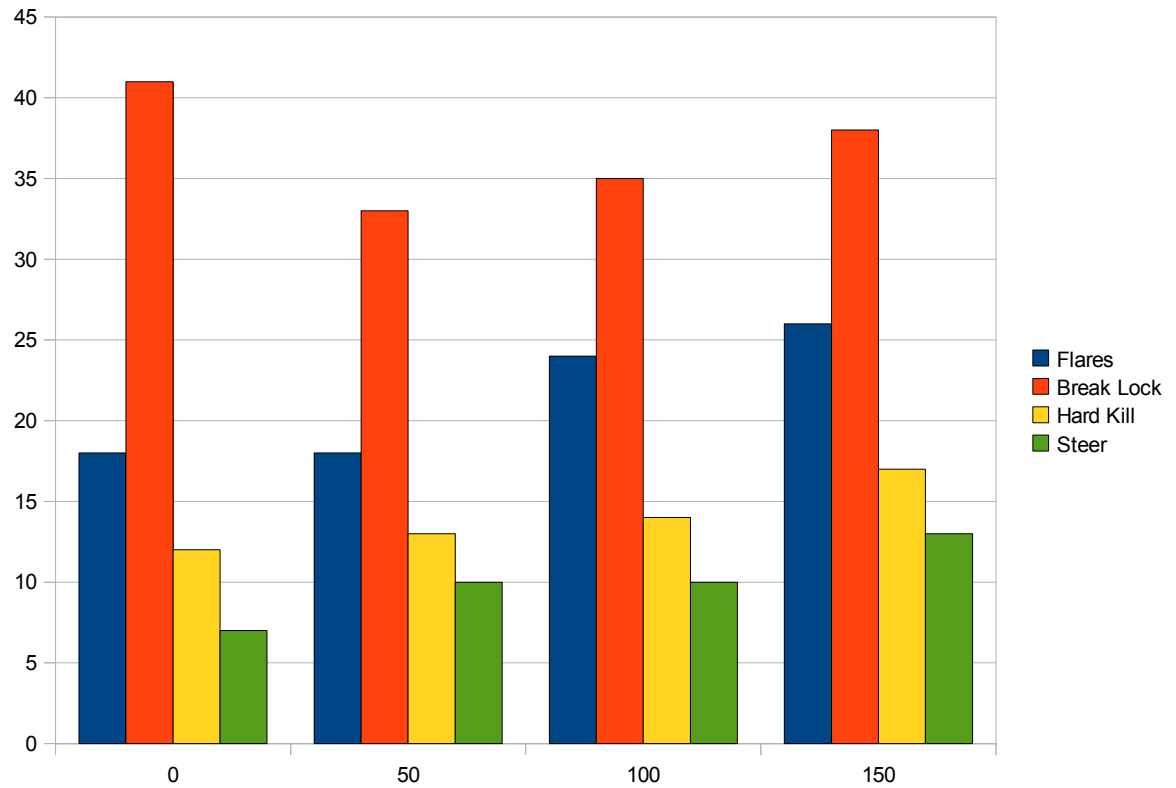


# Results - Height



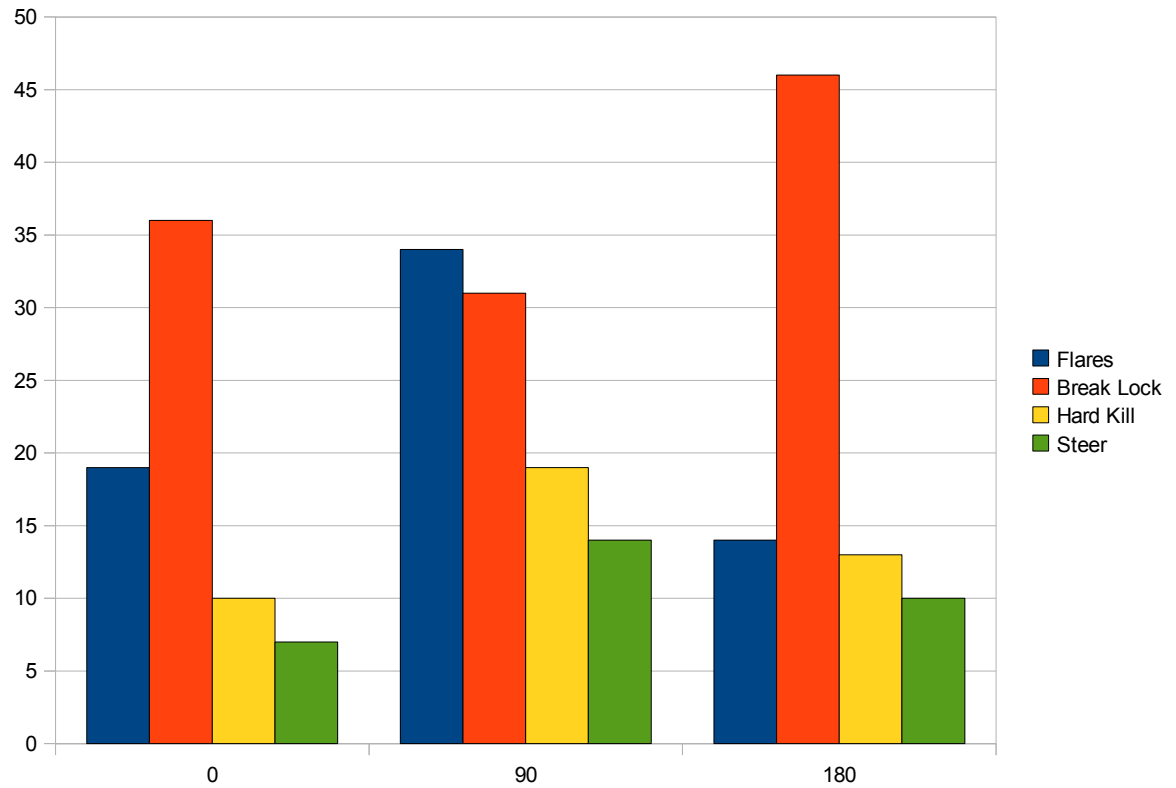


# Results - Speed



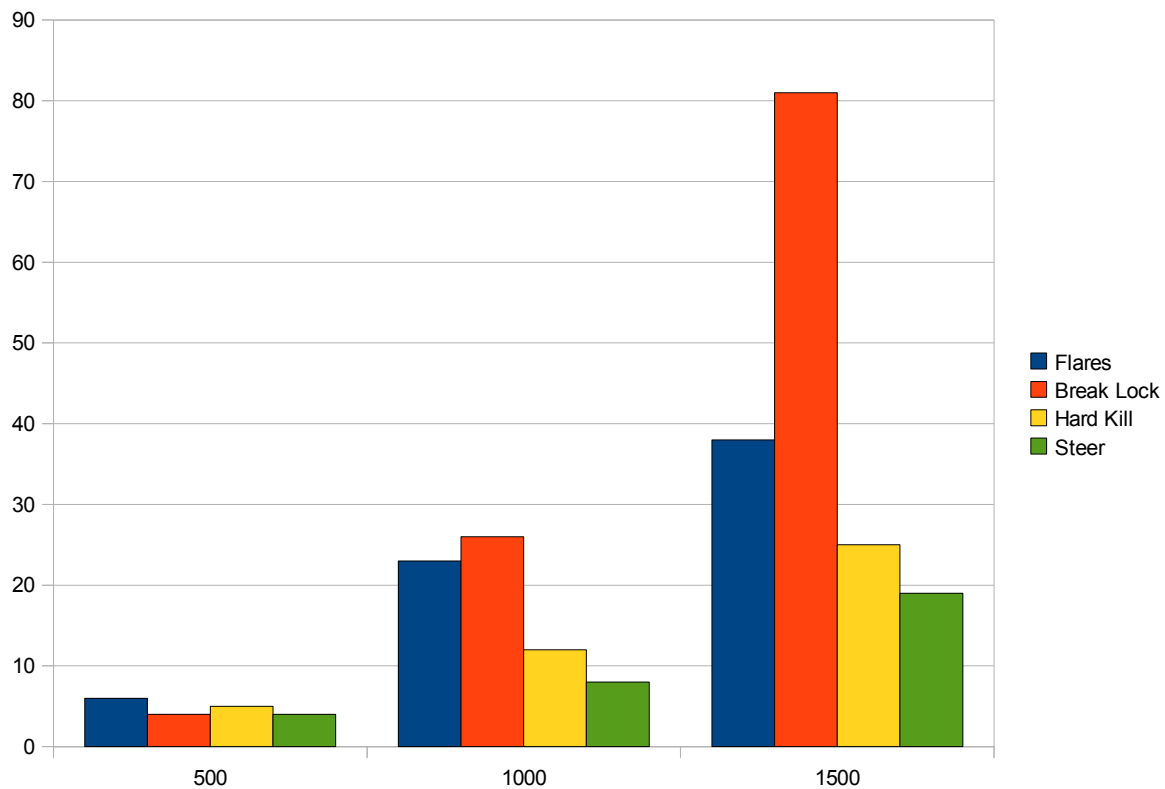


# Results - Angle





# Results – Activation Time







# Conclusion

- Objective comparison
- Height
- Speed
- Aspect Angle
- Activation Time



# Q&A

Thank you

