Helicopter Operations Simulation (HelOS) and applications

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### Helicopter Operations Simulation (HelOS) and applications

**Title and Subtitle**
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**Abstract**
See also ADM001929. Proceedings, Held in Sydney, Australia on July 8-10, 2003., The original document contains color images.

**Security Classification**
- Report: Unclassified
- Abstract: Unclassified
- This Page: Unclassified

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Introduction

The ADF’s current Amphibious capability will have reached the end of its service life by 2015.

What should succeed this capability?
Simultaneous Helicopter Lift

- All helicopters arrive at a destination at the same time
- Useful for delivering whole units ashore
- Tricky if less deck spots than helicopters
Helicopter Operations Simulation (HelOS)

**INPUTS**: Number of helicopters and type, Type of Operation
- Number of Deck Spots and types (refuel, launching, park)
- Distance to destination

**OUTPUTS**: Operation Times, Fuel Consumed, Deck Crew Hours, Controller Intensity, Safety Measurement

**An Object-Oriented Queuing model**

- Controller Object
  - Sends Requests
  - Controller Object Sends Directives

- Helicopter Object
  - Sends Requests
  - Helicopter Object Sends Directives
Past uses

- HelOS has been used in future capability studies to:
  - estimate the minimum number of deck spots required to launch a simultaneous lift of $n$ airframe types
  - estimate the benefits of having more than this minimum, i.e. impacts on time, safety etc
Possibilities for the future: Scheduling

Example: Launching 3 helicopters from 2 spots

Should you launch 2 then 1…

…or 1 then 2?

Different schedules affect the work load, fuel consumption and safety of operation
Possibilities for the future: C2 issues

- Monitoring the controller activity could offer insight into C2 levels during an operation

- Trials required (possibly human-in-the-loop) to see how such results map to reality

Example of HelOS output
Possibilities for the future: Developing SOPs

- Using outputs from HelOS, trade offs that occur by altering the operation can be analysed
- Such work could feed the development of ‘optimal’ Standard Operating Procedures

HelOS outputs
At the moment...

- HelOS being shifted from analysis tool to an operators tool
- Integration into Littoral Battlespace Tool Set (LBaTS)
- Research into inclusion of optimisation (ILP)
- Discussions being held to use HelOS for planning ops during EX CROC 03
Summary

- HelOS is an object oriented modelling tool which simulates amphibious helicopter operations
- Useful for analysis of
  - Platform requirements
  - Scheduling and C2 issues
  - SOP development
- Useful for operators as a planning tool
QUESTIONS?