



Research Update
Briefing for 09 May 2018 HSRMC

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SURVIVABILITY

Survivability – Ditching & Water Impact (1)

EASA Rule Making Task RMT.0120

Phase 1

- New CS and AMC finalised and publication imminent.
- Main features are:
 - Revised ditching stability requirements incorporating irregular wave testing.
 - Automatic deployment of emergency floatation systems.
 - Automatic arming/disarming of emergency floatation systems.
 - Minimum size (= Type IV) for underwater escape exits (equivalent to XBR).
 - Seat rows aligned with underwater escape exits.
 - Provision of hand holds next to underwater escape exits.
 - Standardisation of push-out window emergency exit operation/marketing/lighting.



Survivability – Ditching & Water Impact (2)



EASA Rule Making Task RMT.0120

Phase 1...continued

- Egress possible through any ditching emergency exit with a door in the open and locked position.
 - Externally mounted life rafts.
 - Life raft release from flight deck, cabin and externally from all foreseeable floating attitudes.
 - Direct boarding of life rafts.
- Not much above and beyond that already implemented for UKCS operations.
 - Will only apply to new helicopter designs after TBD date – publication by EASA awaited.

EASA Rule Making Task RMT.0120 Phase 2

- Will review new CS and AMC to determine which elements, if any, to mandate retrospectively to the current helicopter fleet under Part 26.
- Invitation for nominations to RMT issued.

Survivability - Equipment Standards (1)

ASD-STAN Working Group D1 WG9 - Ditching Equipment



- Emergency Breathing Systems:
 - Final version of prEN 4856 published by ASD-STAN in December 2017 and submitted to CEN for formal vote (= conversion to 'full' EN); EN expected to be published by CEN by end June 2018.
 - EASA have confirmed prEN / EN 4856 will be republished under cover of a new ETSO later in 2018.
 - EASA expected to use new standard to support the new air operating rules (SPA.HOFO.165(c)) applicable from 1st July 2018.
 - EASA to determine what action may be required for existing CAP 1034 approved equipment (differences are minor).



Survivability - Equipment Standards (2)

■ Immersion suits:

- Work on revised standard (prEN 4863) approx. 75% complete; expected to be completed Q4 2018.
- Main change is the introduction of four levels of insulation to permit a better overall solution for differing operating environments (sea temperatures).
- Expecting manufacturers to produce a single suit 'shell' with a range of liners.

■ Life jackets:

- Work on revised standard (prEN 4862) approx. 75% complete; expected to be completed Q4 2018.
- Main issue to be addressed is improvement / provision of self-righting capability; dependant on level of insulation.



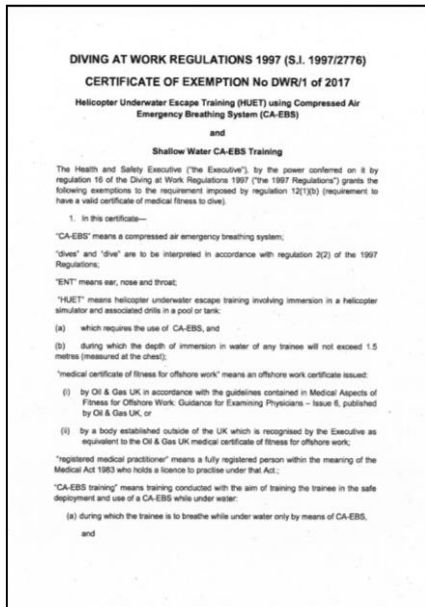
Survivability - Equipment Standards (3)

- Life rafts:
 - Main issue is to address the lack of a standard for externally mounted life rafts.
 - Work to start in Q4 2018. Starting point will be existing ETSO-2C505 standard.
 - Bristow DO and Airbus Helicopters have agreed to provide input on integration aspects.



Survivability – EBS Training

- Update to HSE exemption against Diving At Work Regulations (DAWR) issued 05 April 2017.
- new OPITO syllabus for ‘wet’ training established and introduced by OGUK from 26 March 2018.
- Full HUET training implemented in Canada in June 2016.
- ‘Road map’ to eventual extension of Cat A EBS training to HUET to be developed.



OPERATIONAL ISSUES

Helicopter TAWS (1)

Phase 1:

- Certification of equipment Service Bulletin for Honeywell Mk XXII EGPWS progressing well – expected QTR 3/4 2018.
- Progress with aircraft Service Bulletins at OEMs slower due to concerns.
- Issues:
 - Mode 7 is unnecessary due to envelope protection provided by autopilot.
Ineffective during manual flight and/or with degraded autopilot (allowed by MMEL).
 - Offshore obstacles should not have been removed from the obstacle database.
Necessary to address excessive nuisance alert rate. No practical means of updating for mobiles; inadequate resolution; inability to distinguish between destination and obstacle.
 - Deletion of Low Alt mode.
Operators have been polled and loss of Low Alt mode is accepted.
 - Caution message for Mode 7 should be “Power Power” rather than “Check Airspeed”.
Operators disagree and prefer “Check Airspeed”.
 - Display of new “Check Airspeed” alert message on PFD attitude ball impractical.
Primary alert is auditory; visual alerts are secondary and master warning/caution will still activate.
- Industry meeting being arranged by EASA for 30 May to resolve.
- EASA proposes to ‘adopt’ CAP 1519 as an interim standard once issues resolved.

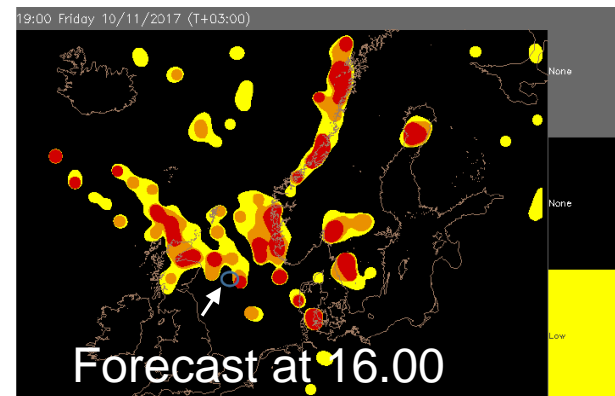
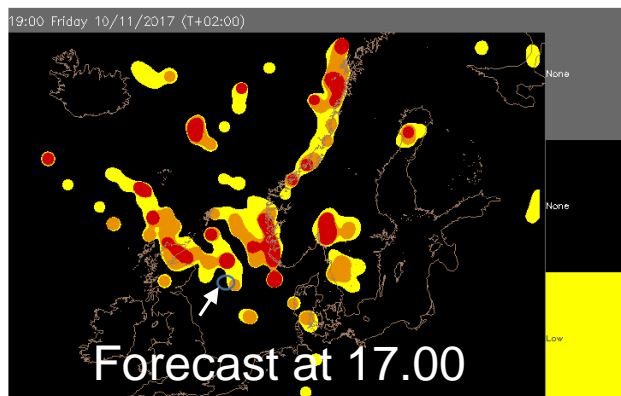
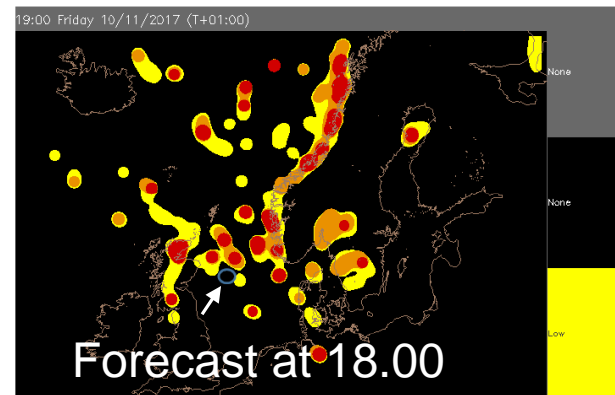
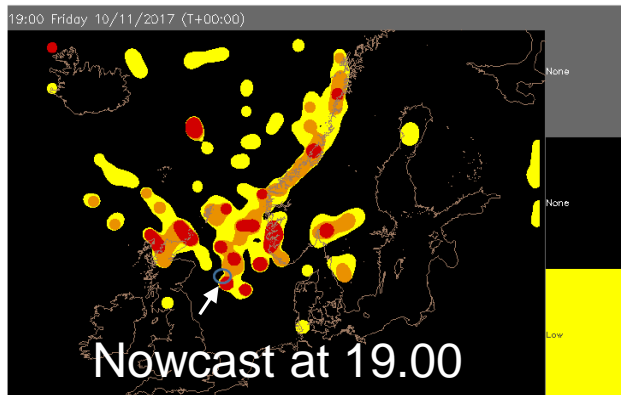
Helicopter TAWS (2)

Phase 2:

- Research on alert form/format at Cranfield University / RHUoL completed and first draft of final report reviewed. Mature draft will be circulated to project team mid-May. The main outputs are:
 - Auditory alerts should form the primary means of providing HTAWS alerts.
 - Visual HTAWS alerts should only be used to supplement the auditory alerts.
 - Auditory alerts should be presented at a level at least 15dB above ambient cockpit noise. This should be assured by dynamic adjustment of the HTAWS alert level, based on measured ambient noise.
 - Auditory alerts should comprise an attention followed by a short speech message.
 - Pilots should be prevented from wearing ear plugs where this could compromise the audibility of auditory alerts.
 - In terms of future work, tactile alerting should be investigated.
- Production of 'formal' Class A HTAWS MOPS:
 - Contact with EUROCAE established.
 - Discussion paper to be produced for submission to 29-30 August 2018 Technical Advisory Committee.
 - Honeywell have agreed to provide co-chair.

Triggered Lightning Strike Forecasting (1)

- Concerns raised following lightning strike at 18.41 on 10th November 2017:
 - Difficulties in reconciling Met Office analysis with OHWeb displays at the time of crew pre-departure briefing.
 - Volatility of triggered lightning risk in conditions of scattered showers.



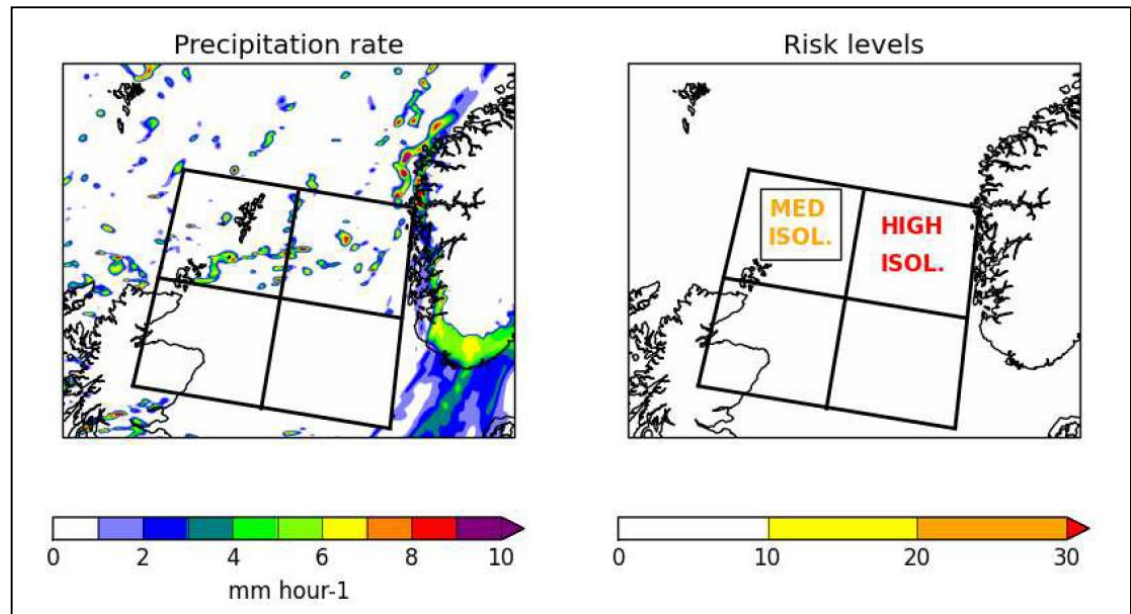
Triggered Lightning Strike Forecasting (2)

- Resulting Met Office actions:

- Forecast updates regularised, i.e. update at 25 mins past the hour suppressed until 30 mins past the hour.
- Facility for flight crews to print PDF of forecast at time of briefing to be added.
- Model upgrade to improve accuracy of forecasts to be implemented prior to 2018/19 'season'.

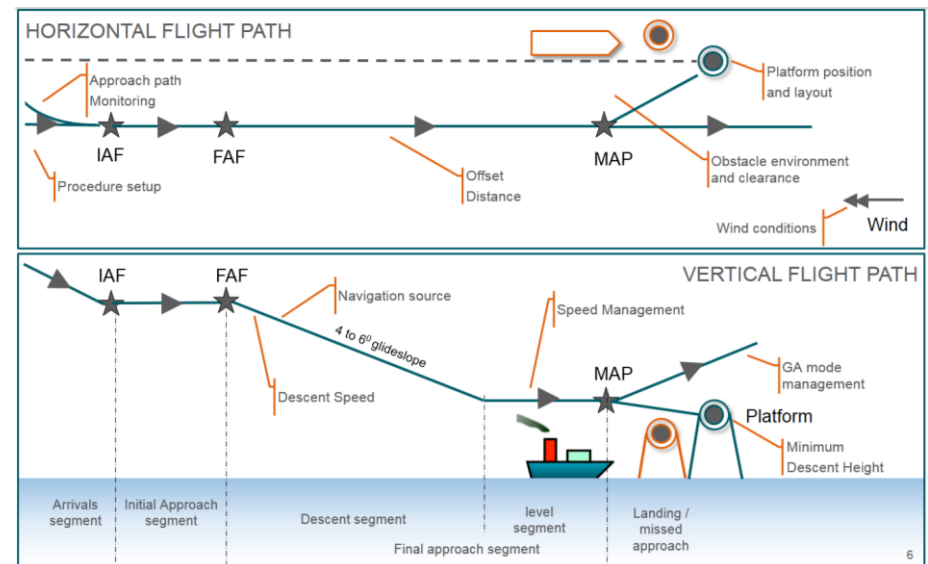
- Other possibilities:

- Identify general areas of volatile risk to facilitate the application of appropriate operating procedures.
- Met Office have proposed a fixed box grid – too coarse and inaccurate?
- Variable contour denoting extent of area of volatility may be possible.



GPS- Guided Offshore Approaches (1)

- Research on SBAS Offshore Approach Procedure (SOAP) completed.
- Next logical step should be introduction into service trials to validate / road-test new AMC / GM for operating rules (SPA.HOFO) to facilitate roll-out.
- Need a certificated system to conduct these trials; helicopter manufacturers (OEMs) have systems available.
- Overall objective of current work is to review the OEM systems to identify a suitable candidate to be used as a test vehicle for in-service trials.



GPS- Guided Offshore Approaches (2)



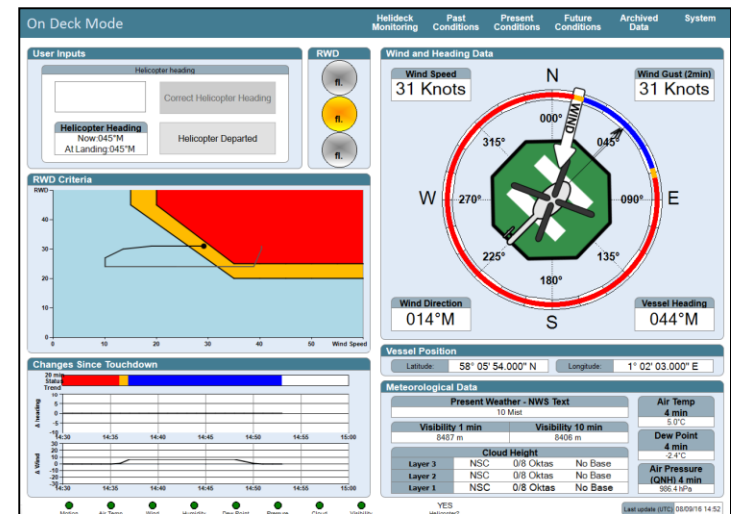
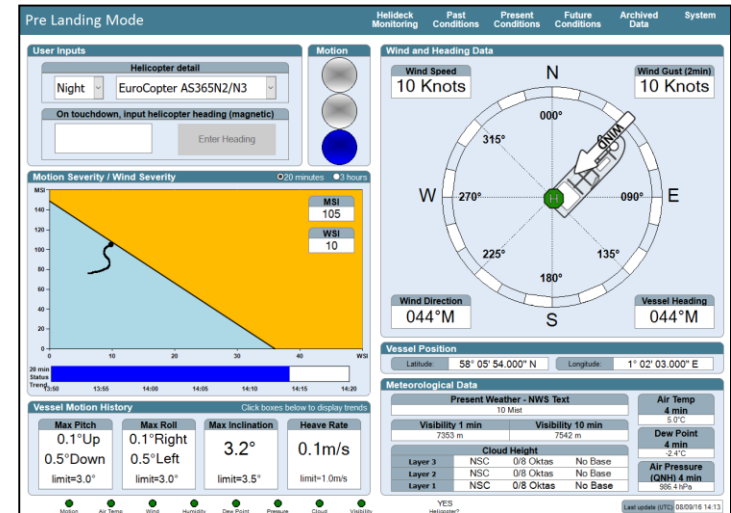
- Project to investigate OEM systems and perform gap analysis (relative to SOAP) launched January 2017.
- Phase 1 comprising initial review of OEM systems based on readily available information completed (presented at May 2017 HSRMC).
- Phase 2 comprising detailed investigation of issues identified in Phase 1 split into two stages:
 - Stage 1: Initial engagement:
 - one OEM completed.
 - second OEM now hopefully in progress following assistance from HeliOffshore.
 - progress with third OEM pending establishment of a NDA.
 - Stage 2: Further engagement:
 - underway with one OEM.
 - pending completion of initial engagement with remaining two OEMs.
- Additional task to produce a supporting case for the introduction of GPS-guided offshore approaches being performed in parallel.
- Update from Helios at autumn HSRMC meeting.

HELIDECKS

Operations to Moving Helidecks (1)

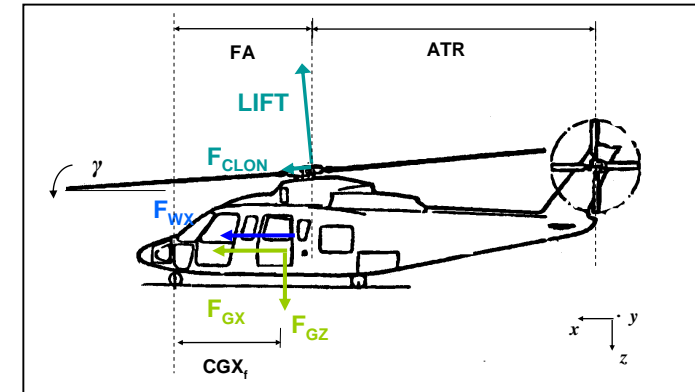
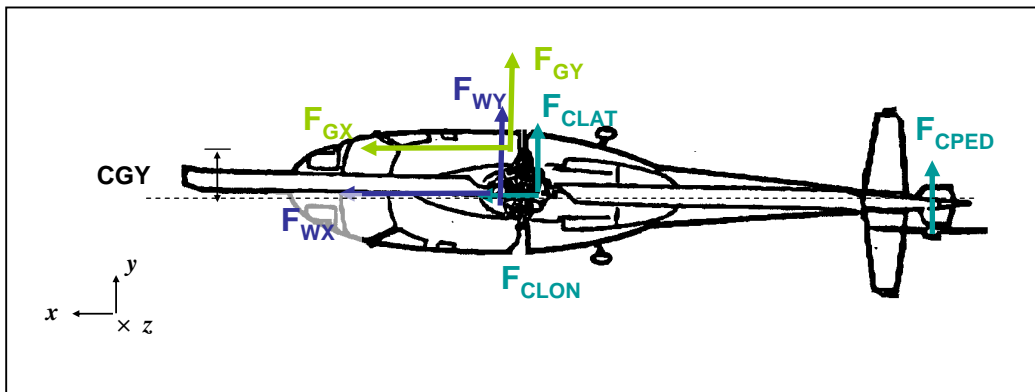
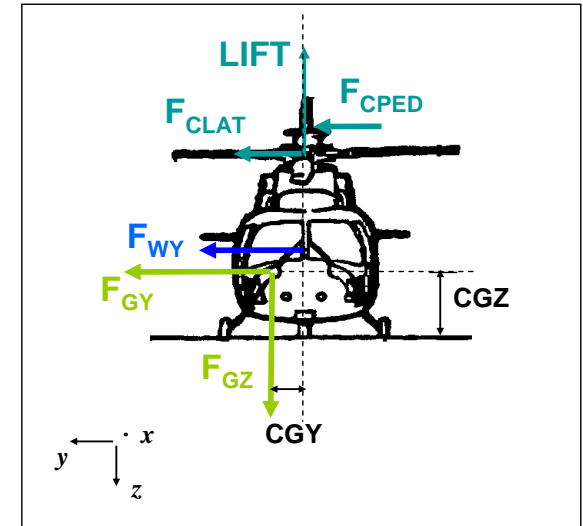
- Helideck Monitoring System (HMS) specification:
 - New functionality addressing on-deck stability added to existing HCA specification.
 - Published by HCA as Rev.9 of HMS standard.
 - Will be added to CAP 437 Q3 2018.
 - Will be required from 01 April 2021, i.e. 3-year lead in. (NB: Limited to stable deck conditions where Rev.9 HMS not provided.)
 - Apart from traffic lights, retrofit should comprise only a software upgrade to existing HMS + MRU alignment for most vessels.

- In-service trials:
 - Latest systems installed on Chevron 'Captain' and 'Alba FSU' vessels.
 - Final trials await installation of upgraded 'traffic lights' – expected early May 2018 for Captain.
 - Main / only unresolved issue is intensity of 'traffic lights' (increased from 10cd to 400cd).



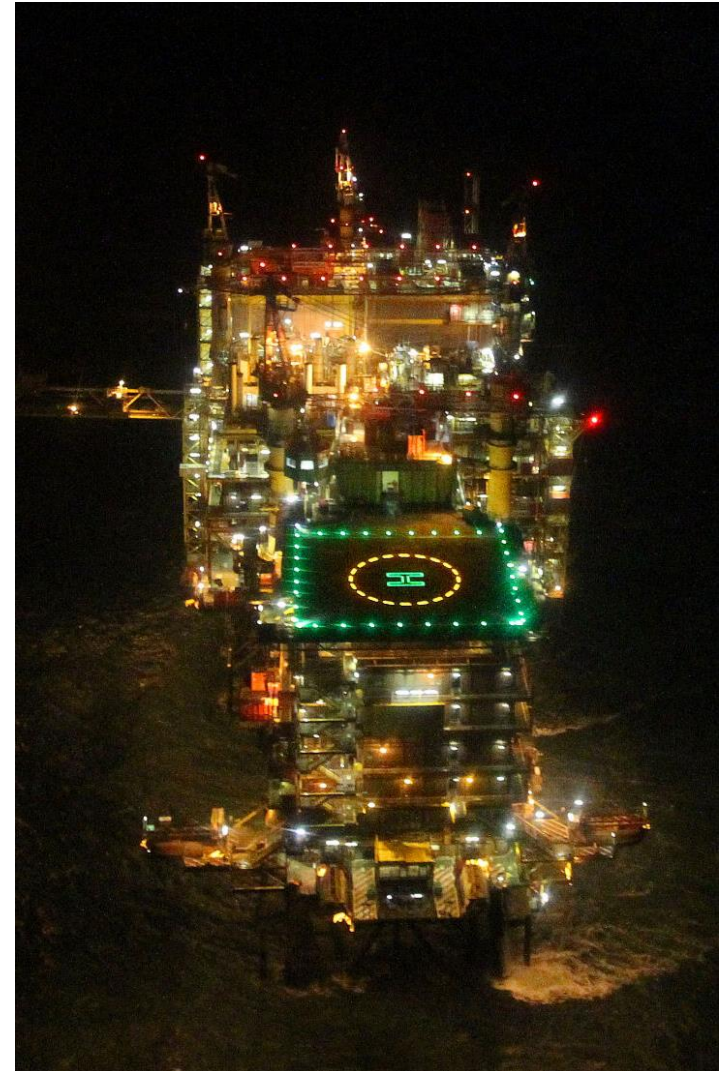
Operations to Moving Helidecks (2)

- Further work on HMS standard:
 - Classification of helicopter types for landing (touchdown) limits (pitch/roll/heave rate) to be addressed.
 - Helicopter type-specific MSI/WSI limits to be developed.
 - Helideck classification scheme to be reviewed and updated.



Helideck Lighting

- Status of approvals:
 - Orga, IMT, FricTape and Tranberg systems approved by HCA.
 - Orga (Gen1 & Gen2), IMT (Mk1 & Mk2) and FricTape systems approved by CAAi.
 - Further systems 'in progress' with CAAi.
 - **Check with HCA and/or CAA before purchasing any other brands.**
- In-Service Issues:
 - Component cracking:
 - Chemicals (cleaning fluids, thread locking fluid, helicopter engine/gearbox oil suspected).
 - Mechanical damage.
 - Condensation in lenses.
 - Helicopter tyre damage: not confirmed but plastic covers fitted regardless.
 - Burning.
 - Most/all now resolved.
- Amendment 1 to CAP 437 8th Edition:
 - Minor changes mostly for clarification.



Canadian Initiatives

C-NLOPB (1)



- CFD - In 2015 we experienced a number of compressor stalls in our jurisdiction. As a result, we sent a letter to all operators directing them to perform a CFD study / Risk analysis re turbulence, turbine exhaust, dry powder, such as cement, and any other phenomena that could lead to a compressor stall on an offshore facility.
- Helidecks - In 2015 local operators were advised that all facilities in our jurisdiction were expected to be CAP 437 compliant re Circle / H lighting NLT Dec 31, 2017. All facilities have met that requirement.
- HeliOffshore is standing-up a helideck working group. I have signed up for that WG. My recommendation will be to comply with CAP 437 as a global standard.
- Side flotation - We are still very interested in seeing this to fruition.

C-NLOPB (2)



- Canada is developing new OSH regs. Part of these regs will deal with Transportation of pax by helo. The C-NLOPB is also developing a new Code of Practice for this same subject.
- HTAWS (and its adoption) was also a topic of discussion at HeliOffshore.
- Hot refueling offshore is still a hot topic for us.
- New GPS approaches to rigs are being developed.
- We have just begun a review of the Helicopter Flight Suit standard.
- The other significant item we are looking at is long-range Ops with special focus on the lack of washroom facilities and the fact that a boomerang could mean pax and crew could be required to "hold it" for 4.5 to 5 hrs.

Wood Group / Cougar



- Validating any CFD deck availability study we have on hand today. In other words, when we receive the new BMT report with finer resolution (10 degrees) we will validate all the edges of the limiting arcs and speeds.
- Validating pilot workloads when operating around the edge of limiting areas. Since there was about 10 years of operations without the limitation as they exist today, there may be a volume of data when operating within the restricted zones too.
- Investigate the viability of the smoke method of visualizing the exhaust gas. This is mostly an assessment of what is involved from a technical perspective and the environmental impact study. A subsequent phase will be to install as a trial and validate the usefulness to pilots.
- Investigate using “a sensor” to improve the real time wind, turbulence and exhaust gas information to pilots. This project will evaluate sensors such as LIDAR, possibly even a UAS and then how to present that to a crew before landing. [Similar to BMT Heli Ops Module?]

Thank you for your attention...

Any questions?