

FLYABILITY

SAFE DRONES FOR INACCESSIBLE PLACES

Drones in Marine & Offshore: Improving Safety and Reducing the Costs of Inspections

Thursday, July 2 2020

04:30 PM - 05:30 PM CEST

10:30 AM - 11:30 AM EST

MODERATOR



Zacc Dukowitz
Content Marketing Manager
—Flyability—

PANELISTS



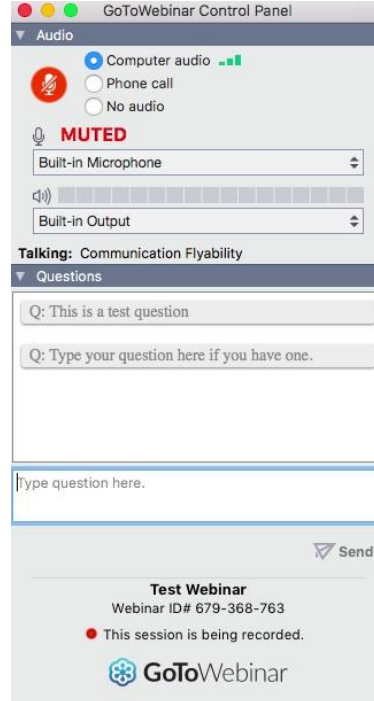
Vincent Joly
Digital Solutions Manager
—Bureau Veritas—



Damien Thiery
Offshore Network Support & New
Technologies Manager
—Bureau Veritas—

WEBINAR ENGAGEMENT


Ask questions during the webinar.



The screenshot shows the GoToWebinar Control Panel interface. At the top, the title bar reads "GoToWebinar Control Panel". Below it, the "Audio" section is expanded, showing three radio buttons: "Computer audio" (selected), "Phone call", and "No audio". A red microphone icon and the word "MUTED" in red are displayed. Below this, a dropdown menu shows "Built-in Microphone". A speaker icon and a volume bar are also present, with another dropdown menu showing "Built-in Output". The "Talking: Communication Flyability" section is collapsed. The "Questions" section is expanded, showing two text input fields: "Q: This is a test question" and "Q: Type your question here if you have one." Below these is a larger text input field with the placeholder "Type question here." and a "Send" button with a paper plane icon. At the bottom, the "Test Webinar" section displays "Webinar ID# 679-368-763" and a red dot indicating "This session is being recorded." The GoToWebinar logo is at the very bottom.


GoToWebinar Control Panel

Audio



☒ Computer audio 

☐ Phone call

☐ No audio

 **MUTED**

Built-in Microphone

Built-in Output


Talking: Communication Flyability

Questions


Q: This is a test question


Q: Type your question here if you have one.

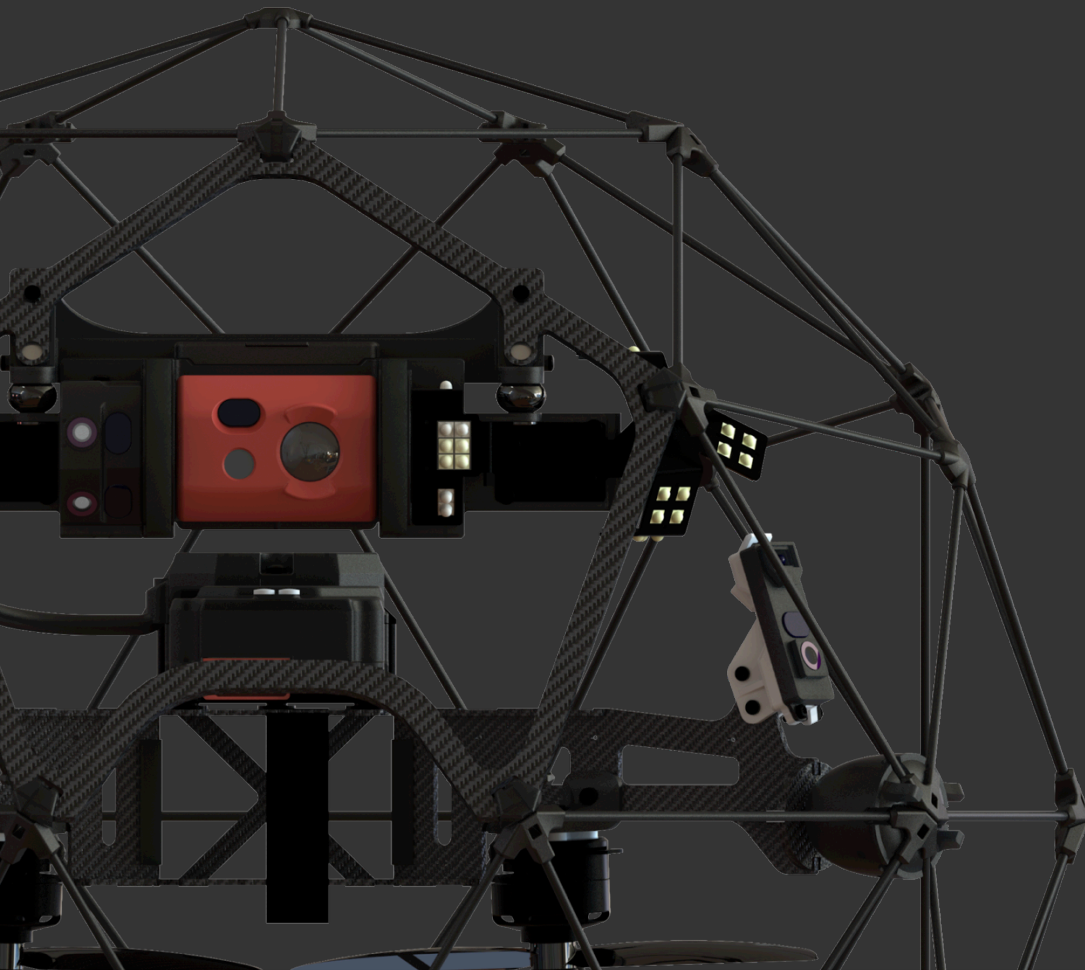
Type question here.

 Send

Test Webinar
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The recording of this webinar will be
sent to you afterward.

AGENDA

1 5' Introduction

2 20' Vincent Joly & Damien Thiery, Bureau Veritas

Drones in Marine & Offshore: Improving Safety and Reducing the Costs of Inspections

3 35' Panel Discussion/Q&A





Drones in Marine & Offshore: Improving Safety and Reducing the Costs of Inspections

Vincent Joly
Digital Solutions Manager



Damien Thiery
Offshore Network Support & New Technologies
Manager





DRONES IN MARINE & OFFSHORE

IMPROVING SAFETY AND REDUCING THE
COSTS OF INSPECTIONS

WEBINAR CO-HOSTED WITH  FLYABILITY

2nd July 2020



BUREAU VERITAS

A world leader in Testing Inspection & Certification services

INDUSTRIES

**AGRIFOOD &
COMMODITIES**

**MARINE &
OFFSHORE**

**BUILDINGS &
INFRASTRUCTURES**

CERTIFICATION

**CONSUMER
PRODUCTS**

A CLASSIFICATION SOCIETY

OUR ACTIVITY

Verifying the conformity of ships (under construction and in service) to BV Classification Rules and IMO Conventions that mainly concern structural soundness & reliability of machinery on-board

- ✓ Design review
- ✓ Surveys in Shipyard
- ✓ Material and equipment certification
- ✓ Periodical surveys
- ✓ Occasional surveys

CLIENTS

Shipyard / shipbuilders / ship owners

Equipment / component manufacturers

Oil companies / EPC

Insurance companies, P&I clubs, lawyers

180 survey stations

2 650 employees

11 390
Ships & Offshore units
129 046 995 Total GRT



WHAT IS OUR OBJECTIVE?



“Replacing costly and dangerous means of access by safer and more efficient Remote Inspection Techniques during structural inspections of the Hull.”

WHY AERIAL DRONES?

Benefits provided



1

SAFETY

- ✓ No access to confined spaces
- ✓ No working at height



2

TIME SAVING

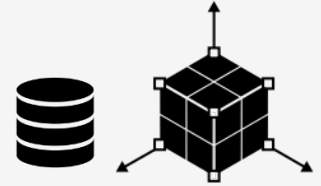
- ✓ Reduce confined space preparation time
- ✓ No need preparation onboard
- ✓ Up to 30~50% inspection time reduction
- ✓ Better planning and better anticipation of the immobilization



3

COST SAVING

- ✓ Reduce the extent of the means of access
- ✓ Pay for scaffoldings only for repairs



4

QUALITY RECORDS

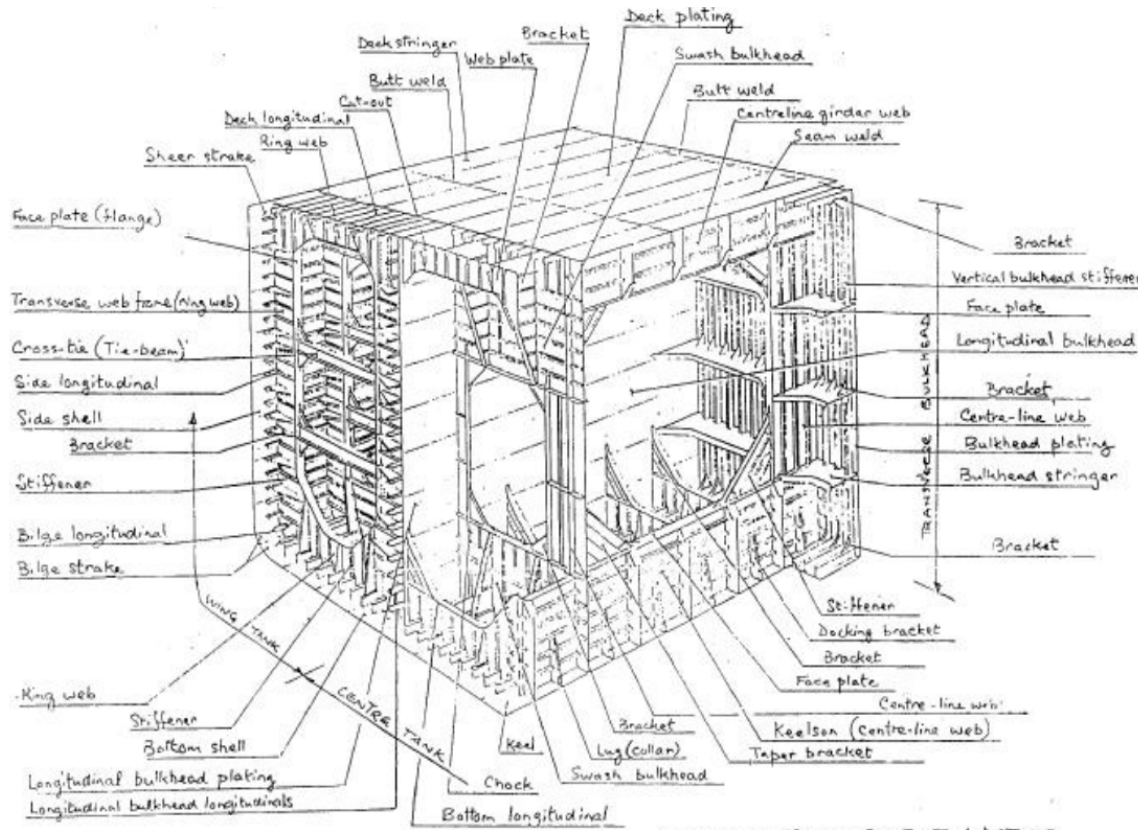
- ✓ Complete record of hull condition
- ✓ Data driven opportunities for condition monitoring and predictive maintenance
- ✓ New opportunities based on 3D modelling

WHAT IS OUR USE CASE FOR AERIAL DRONE?

- During periodic surveys:
 - **Intermediate** Hull surveys
 - **Renewal** Hull surveys
- General visual inspections (GVI) & **Close-up surveys** (CVI)
- Focus on large volumes with limited means of access of **ESP ships** and Offshore units:
 - Cargo holds of **bulk carriers**
 - Cargo tanks of **Oil tankers**
 - Cargo tanks of **FPSO/FSUs**



TYPICAL ENVIRONMENT



Oil Tanker (VLCC):

316,000 Dwt

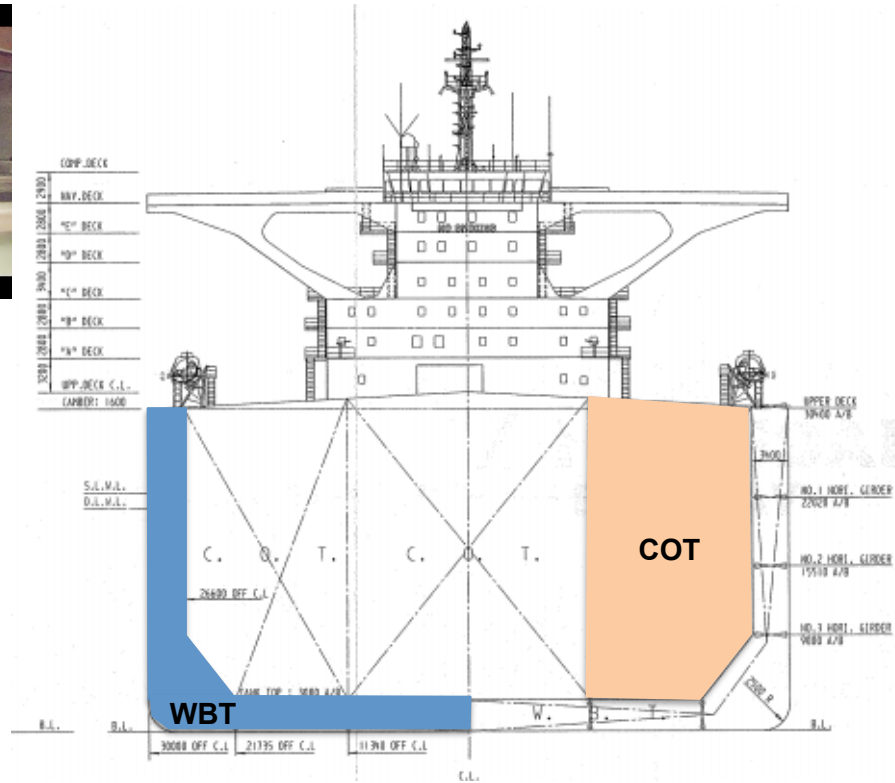
Length (LOA) = 333,1m

Breadth (B) = 60m

Depth (D) = 30,4m

17 Cargo oil Tanks (COT)
12 Ballast Tanks (WBT)

Max CT Volume = 33 000 m³
(L 51m x w 22.7m x h 29m)
Max BT Volume = 9 800 m³



SCOPE OF HULL PERIODICAL SURVEY

Important items:

- bottom plating including suction pipe bell mouths
- side shell and frames
- transverse bulkheads and stiffeners
- underdeck structures
- hatch covers and coamings
- tween decks
- framing systems

Thickness measurements (UTM)

Age of ship (in years at time of class renewal survey)			
Class renewal survey No.1 age ≤ 5	Class renewal survey No.2 5 < age ≤ 10	Class renewal survey No.3 10 < age ≤ 15	Class renewal survey No.4 and subsequent age > 15
One web frame ① in a ballast tank (1)	All web frames ① in a ballast tank (1) The knuckle area ⑥ and the upper part (5 meters approximately) of one web frame in each remaining ballast tank	All web frames ① in all ballast tanks	As class renewal survey for ships between 10 and 15 years of age Additional transverse areas as deemed necessary by the Society
One deck transverse ② in a cargo tank	One deck transverse ② in two cargo tanks	All web frames ⑦ including deck transverse and cross ties, if fitted, in a cargo tank One web frame ⑦ including deck transverse and cross ties, if fitted, in each remaining cargo tank	
One transverse bulkhead ④ in a ballast tank (1)	One transverse bulkhead ④ in each ballast tank (1)	All transverse bulkheads in all cargo ③ and ballast tanks ④	
One transverse bulkhead ⑤ in a cargo wing tank (2)	One transverse bulkhead ⑤ in a cargo wing tank (2)		
One transverse bulkhead ⑤ in a cargo centre tank	One transverse bulkhead ⑤ in two cargo centre tanks		

Extract from Rules for Steel Ships (NR467) – Pt A, Ch4, Sec 3
<https://marine-offshore.bureauveritas.com/nr467-rules-classification-steel-ships>



HOW TO DO IT WITH BV? YOU ARE SHIP-OWNER or SHIP-REPAIR YARD



Approval
Explorer



Home



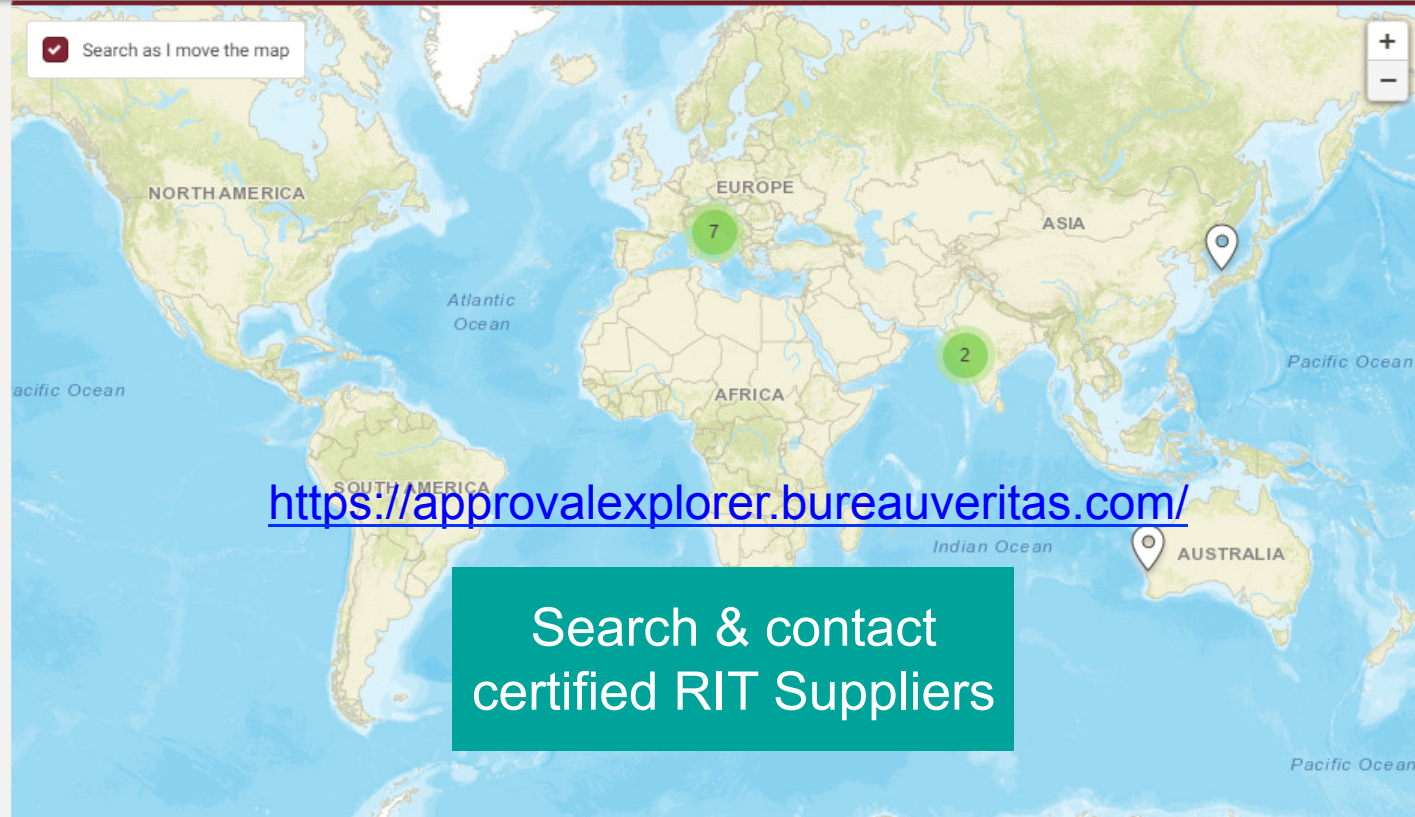
Service Supplier



Product/Manufacturer

Log in 

☒ Search as I move the map



<https://approvalexplorer.bureauveritas.com/>

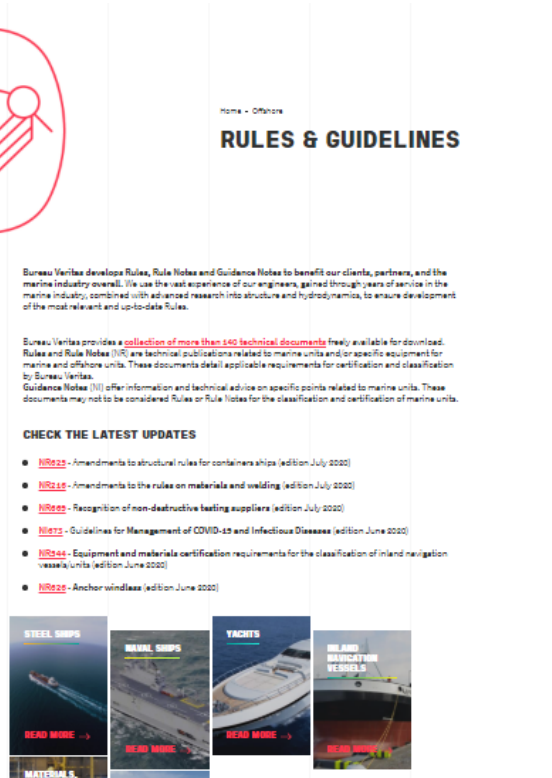
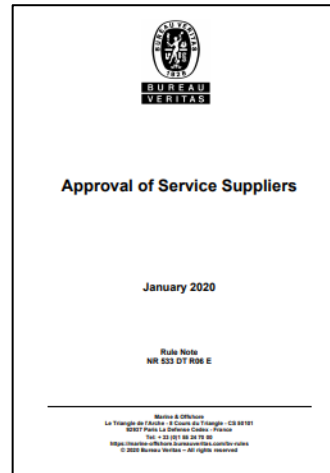
Search & contact
certified RIT Suppliers

HOW TO DO IT WITH BV? YOU ARE A DRONE OPERATOR



Apply for BV's certification as service supplier for Remote Inspection Techniques (BV NR 533):




- Office audit
 - Onboard demonstration
 - Periodic audit to maintain the certification
- ✓ Get listed on Approval Explorer for being contacted by your clients

<https://marine-offshore.bureauveritas.com/>



HOW TO DO IT WITH BV? YOU ARE A DRONE OPERATOR


Login 




Bureau Veritas

Marine & Offshore Directory

<https://myveristar-directory.bureauveritas.com/fmd-directory/>



Where : BV Country, City or Department



Who : Last Name, First Name or Position

Contact our local
office

Thank You



Shaping a World of Trust

<https://marine-offshore.bureauveritas.com/>



PAST WEBINARS

Thursday, April 9

10:30 AM EST / 04:30 PM CEST

Learn How API and ASME Experts Are Working to Expand Drone Inspection Applications

- Suzanne Lemieux, Manager, Operations Security & Emergency Response Policy at API
- Luis Pulgarin, Project Engineering Advisor at ASME

Tuesday April 14

11:30 AM EST / 05:30 PM CEST

How Country-of-Origin Drone Bans Impact U.S. Companies & Agencies Including Public Safety Agencies Fighting COVID-19

- Jordan Gross, Senior Government Relations Lead at DJI
- Romeo Durscher, Senior Director of Public Safety Integration at DJI

Tuesday, April 21

10:30 A.M. EST / 04:30 PM CEST

3D Modeling with Indoor Drones: Applications and Implications

- Andrew McIntyre, Technical Trainer and mapping expert at Pix4D
- Marc Gandillon, Head of Marketing at Flyability

Wednesday April 22

10:30 AM EST / 04:30 PM CEST

How to Build and Scale a Drone Program at Your Company

- Calvin Rieb, Head of Global Unmanned Systems at Cargill
- James Manni, UAS Program Manager at TVA

Tuesday April 28

10:30 AM EST / 04:30 PM CEST

Drones in Oil & Gas: How Chevron Uses Drones to Improve Safety, Reduce Downtimes, and Save Money

- Mauricio Calva, Non-Destructive Examination Expert at Chevron
- Larry Barnard, Downstream & Chemicals, Manufacturing ~ UAS Governance at Chevron

PAST WEBINARS

Thursday, April 30

11:30 AM EST / 5:30 PM CEST

Indoor 3D Modeling Use Cases: Photogrammetry in Action

- Laurie McBean, Geospatial Data Specialist at UAS, Inc.
- Gregory Spirlet, Professional Services Engineer at Flyability

Thursday, May 14

10:30 AM EST / 4:30 PM CEST

Drones in Power Generation: How Exelon Clearsight Uses Drones to Improve Safety, Reduce Downtimes, and Save Money

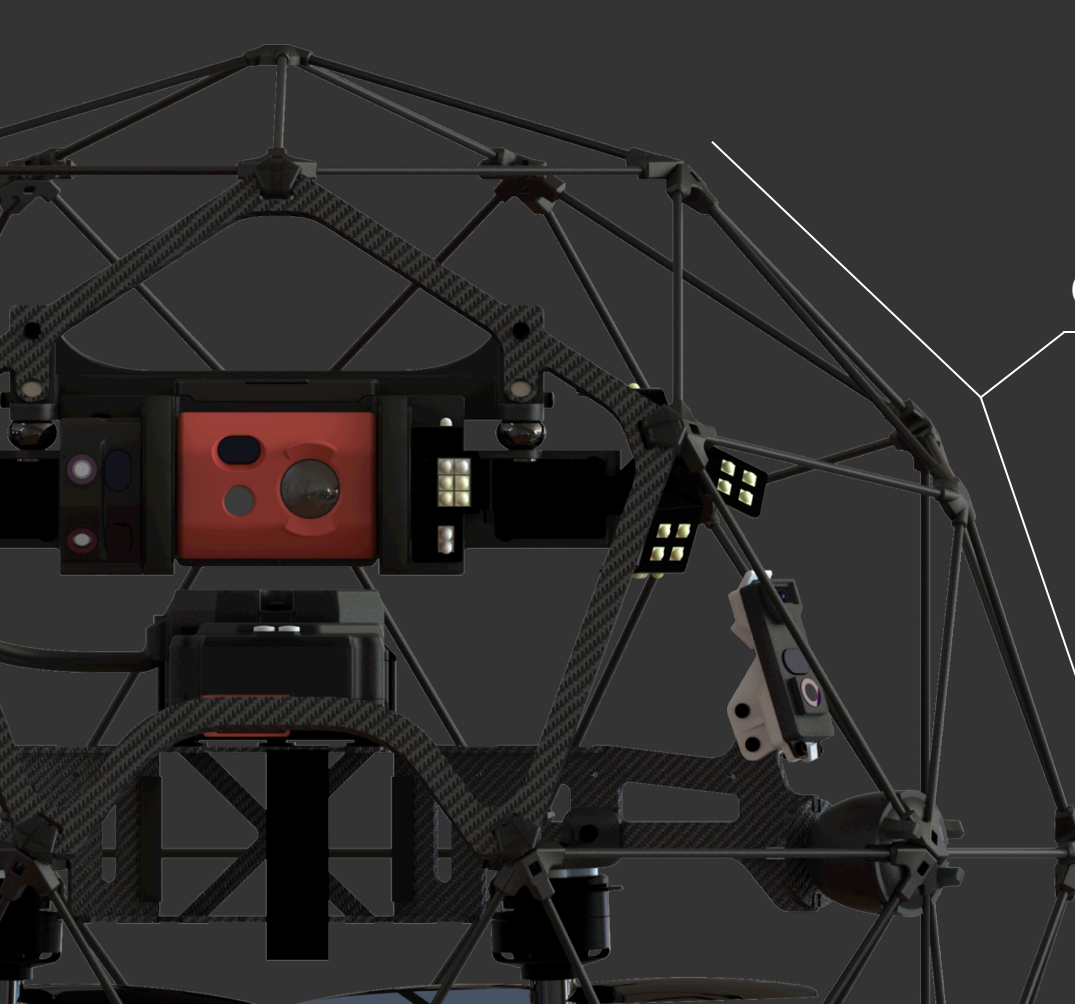
- Chris Place, Business Development Manager at Exelon Clearsight
- Marc Gandillon, Head of Marketing at Flyability

Thursday, July 2

10:30 AM EST / 4:30 PM CEST

Drones in Marine & Offshore: Improving Safety and Reducing the Costs of Inspections

- Vincent Joly, Digital Solution Manager at Bureau Veritas
- Damien Thiery, Offshore Network Support and New Technologies Manager at Bureau Veritas



Q&A

You can also send your questions to:

Mathieu Noirot-Cosson, Flyability— mathieu.noirot-cosson@flyability.com

Vincent Joly, Bureau Veritas— vincent.joly@bureauveritas.com