AIDA luna Installation Video

201405_luna_Filterausech_HD Video.mp4
SeaWater Scrubber Tower Installation
December Photos: Deliziosa in Palermo
Carnival EGCS (scrubber) program timeline

• **2006 - single engine/scrubber installation in HAL ZAANDAM:** Several co-sponsors, including US EPA, Transport Canada, Port of Seattle. Testing onboard continued until 2012.

• **2012 - decision to develop a system with exhaust filtration:** Installed first prototype on QUEEN VICTORIA in late 2012, commissioned in May 2013.

• **2013 - production installations in four ships in four shipyards:** GRAND PRINCESS, COSTA LUMINOSA, COSTA PACIFICA, P&O ARCADIA completed in four shipyards in November/December 2013.

• **2014 - full year installation schedule,** with 49 systems on 23 ships. Expectation is to meet a full 2015 schedule of 74 systems on 29 ships.

• **2014 - “in-service” installations,** with Carnival LEGEND and Costa FAVOLOSA.
2014 Carnival EGCS installation program

+ 49 EGCSs on 23 ships

15 systems in Apr. - May


* Based on dry dock installation date or beginning of in-service installation date
Development progress includes:

- *Eight tailored scrubber tower designs* built and installed for Carnival refits to accommodate different engine sizes and onboard space available.

- *Exhaust filter evolved* to simpler, smaller, lower cost.

- *New Demister* designed for smaller size, higher performance

- Improved *standardized control automation software.*

- Upgrade series for the *Compliance Computer.*
Some supporting activities:

- Initiated *NorthAm ECA Exemption program* with multiple ships.

- Ongoing *meetings with EU and Transport/Environmental Ministries* of 14 coastal member states regarding upcoming EGCS operations with open loop scrubbers.

- Agreement with global lab company SGS for *fleet-wide washwater sampling, analysis and data collection program*.

- Engagement with *Class Societies* Lloyd’s Register, RINA and DNV/GL to harmonize interpretation of statutory requirements.

- Engagement with *USCG, EPA, State authorities and Ports* regarding system operations.
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