

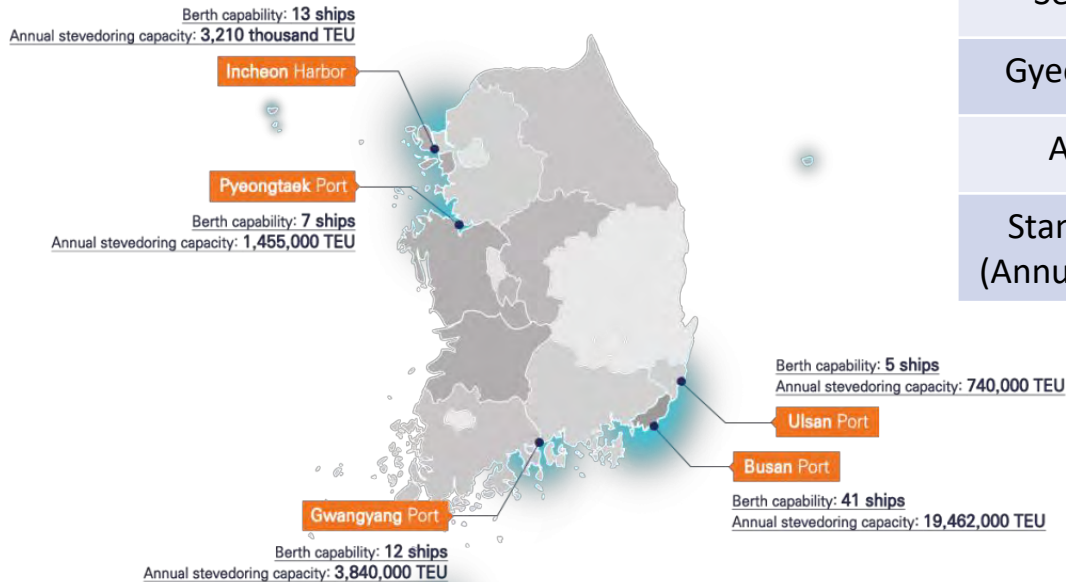
Urban air quality management in Incheon port city

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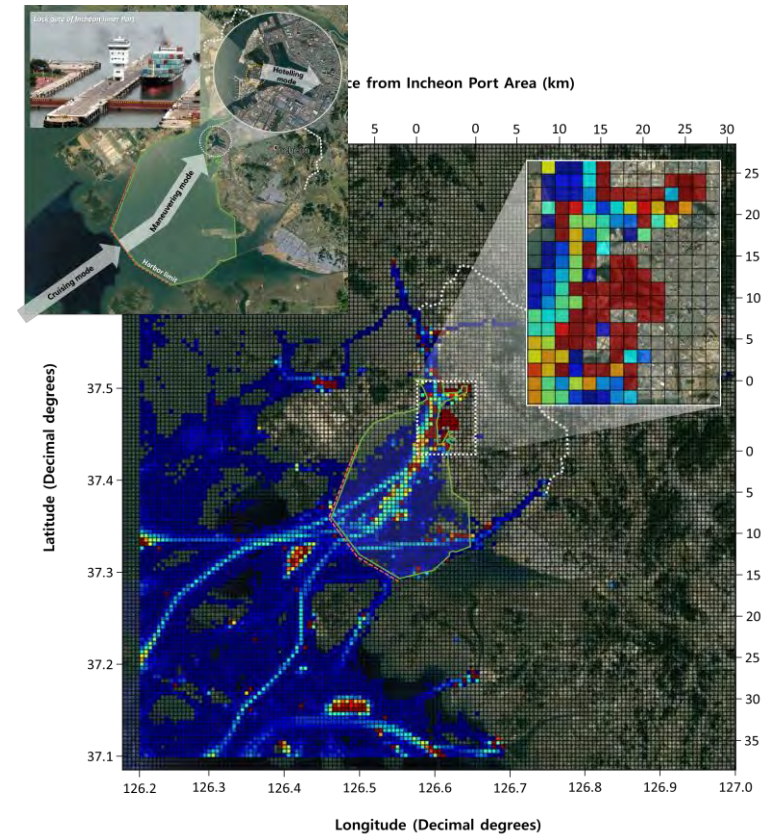
High annual SO₂ in Incheon, 2007



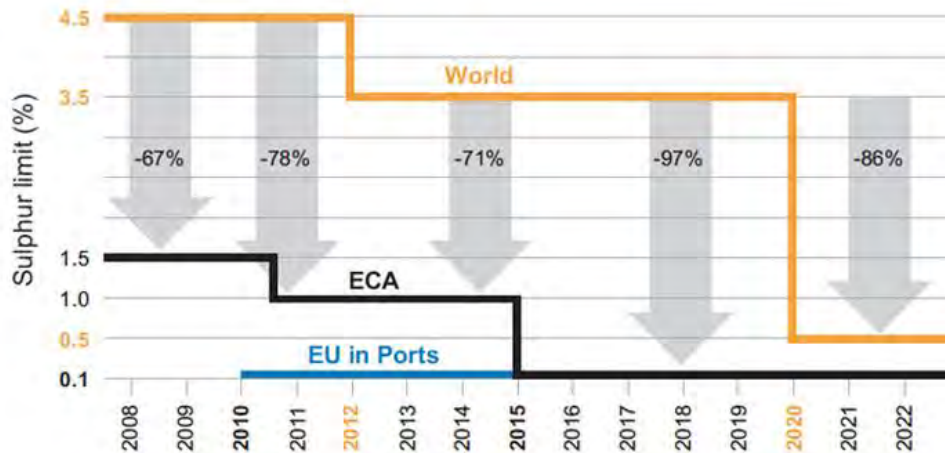
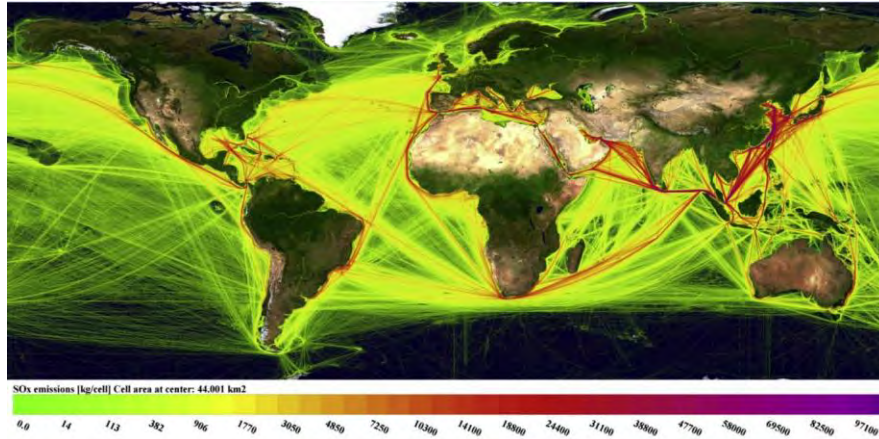
Year	2002	2003	2004	2005	2006
Incheon	0.006	0.007	0.007	0.007	0.007
Seoul	0.005	0.005	0.005	0.005	0.005
Gyeonggi	0.005	0.006	0.005	0.006	0.006
Avg	0.005	0.006	0.006	0.006	0.006
Standard (Annual Avg)	0.02 ppm				



Shipping air emission assessment



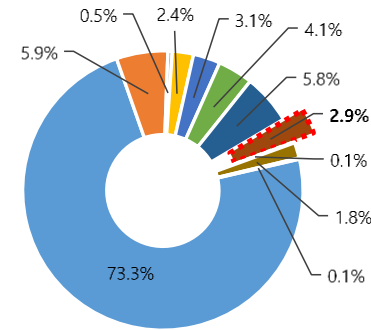
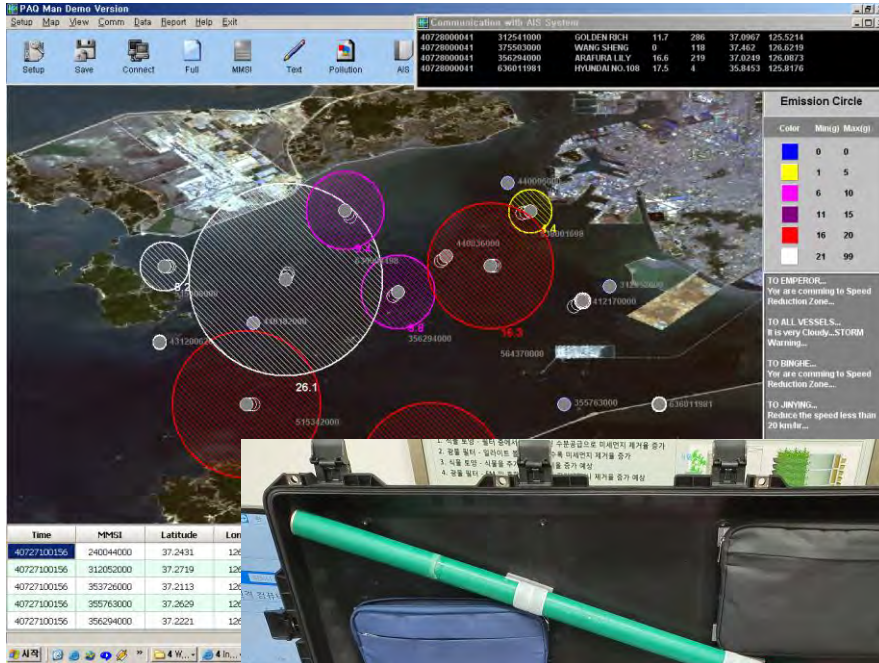
IMO ship emission management for fuel control & ECA



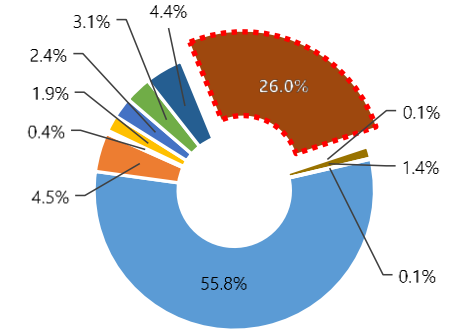
Emission Control Area

(Ref: International Maritime Organization MARPOL)

PAQman: Port Air Quality Management System



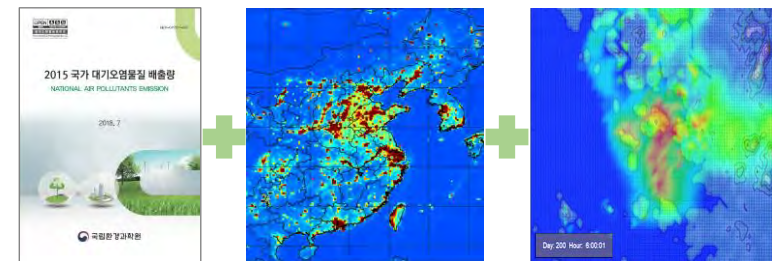
(a) CAPSS



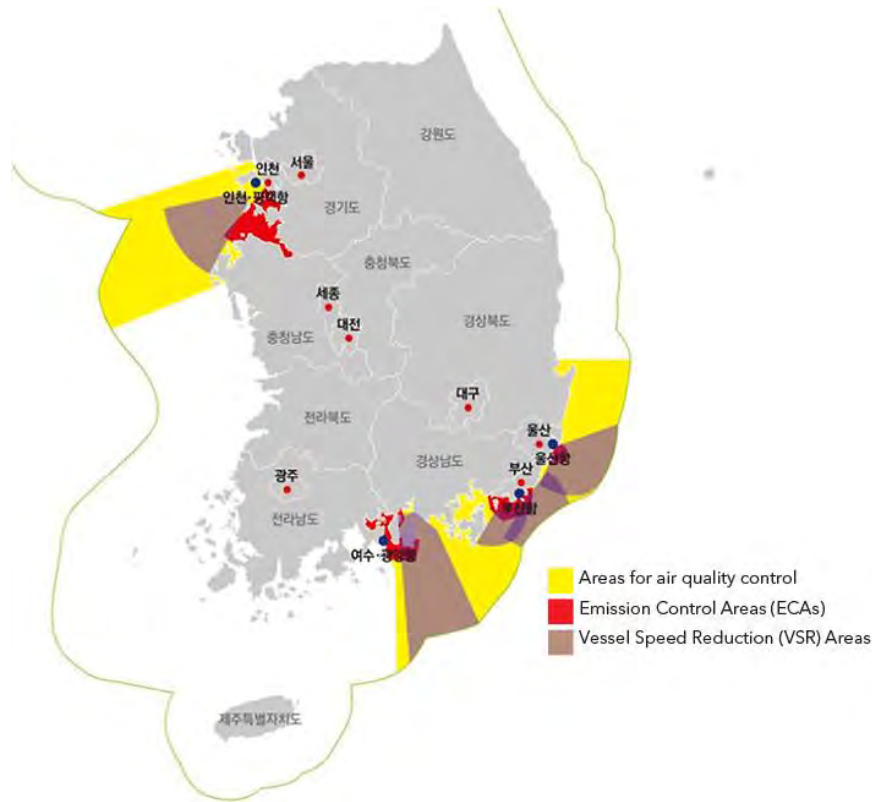
(b) CAPSS applying PAQman[®] result

- Fugitive scattering
- Non-industry combustion
- Production process
- Non-road mobile source (excluding vessels)
- Waste treatment
- Other non-point source

- Energy industry combustion
- Manufacturing combustion
- Road mobile source
- Marine vessel emission
- Bio-combustion



Korean ship emission management



- ‘Special act on improvement of air quality in port areas’, activated in 2020
 - Emission control area
 - Vessel speed reduction
 - Green ship design

Summary

- Better understanding of ship air emission and its impact onto global and local air quality
- Needs to control and manage the air emission from ship by means of ECA, VSR, ...
- Sharing ship air emission inventory toolkit and its application → Port-CASS





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