

Air pollution from ships EU policy

Presentation to
Greening Motorways of the Sea
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EU political background – key facts & figures

The European Union (EU) has 25 Member States, 450m people & c 30% of world shipping tonnage. 90% of EU trade (by volume) is transported by ship.

The EU develops common policies and legislation, usually “directives”, through 3 main institutions:

- European Commission – proposes policies, checks compliance
- Council of Ministers – national govt input; rotating Presidency
- European Parliament – local / political input; directly elected

The EU is not a member of the International Maritime Organization – but the Commission has observer status, and works with the EU Presidency to agree coordinated lines.

Motorways of the sea – can learn from roads?

- Hard shoulders – ports of refuge
- Central reservations – vessel separation
- Police – port state control
- Speed limits
- Tolls/charges – port dues/econ instruments
- Emission standards

EU ship emissions strategy: COM(2002)595

Vol 1 Communication; Vol 2 Directive proposal

Emissions covered:

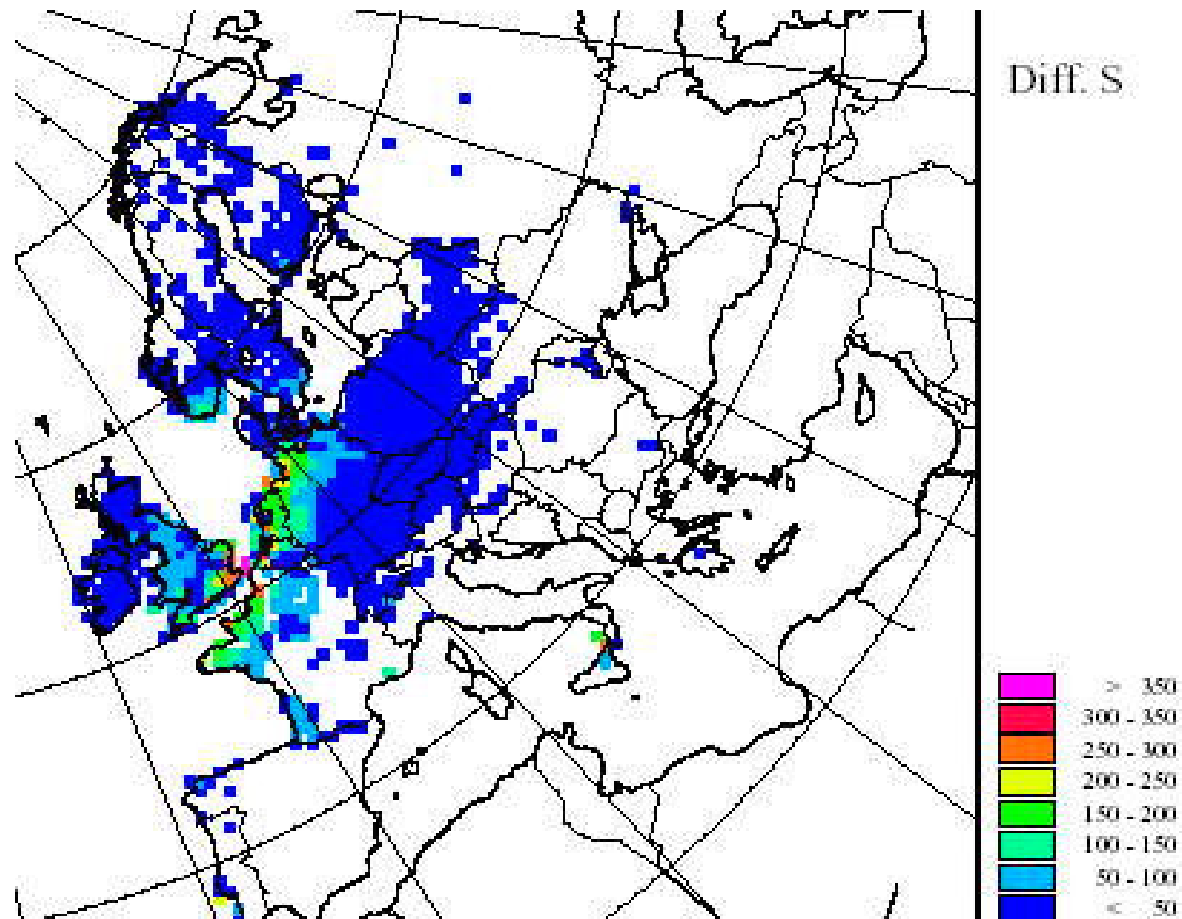
- Sulphur dioxide (SO₂ or SO_x)
- Particulate Matter (PM)
- Nitrogen oxides (NO_x)
- Volatile Organic Compounds (VOCs)
- Carbon dioxide (CO₂)
- Halon

EU focus for SO_x & PM - IMO for NO_x & CO₂

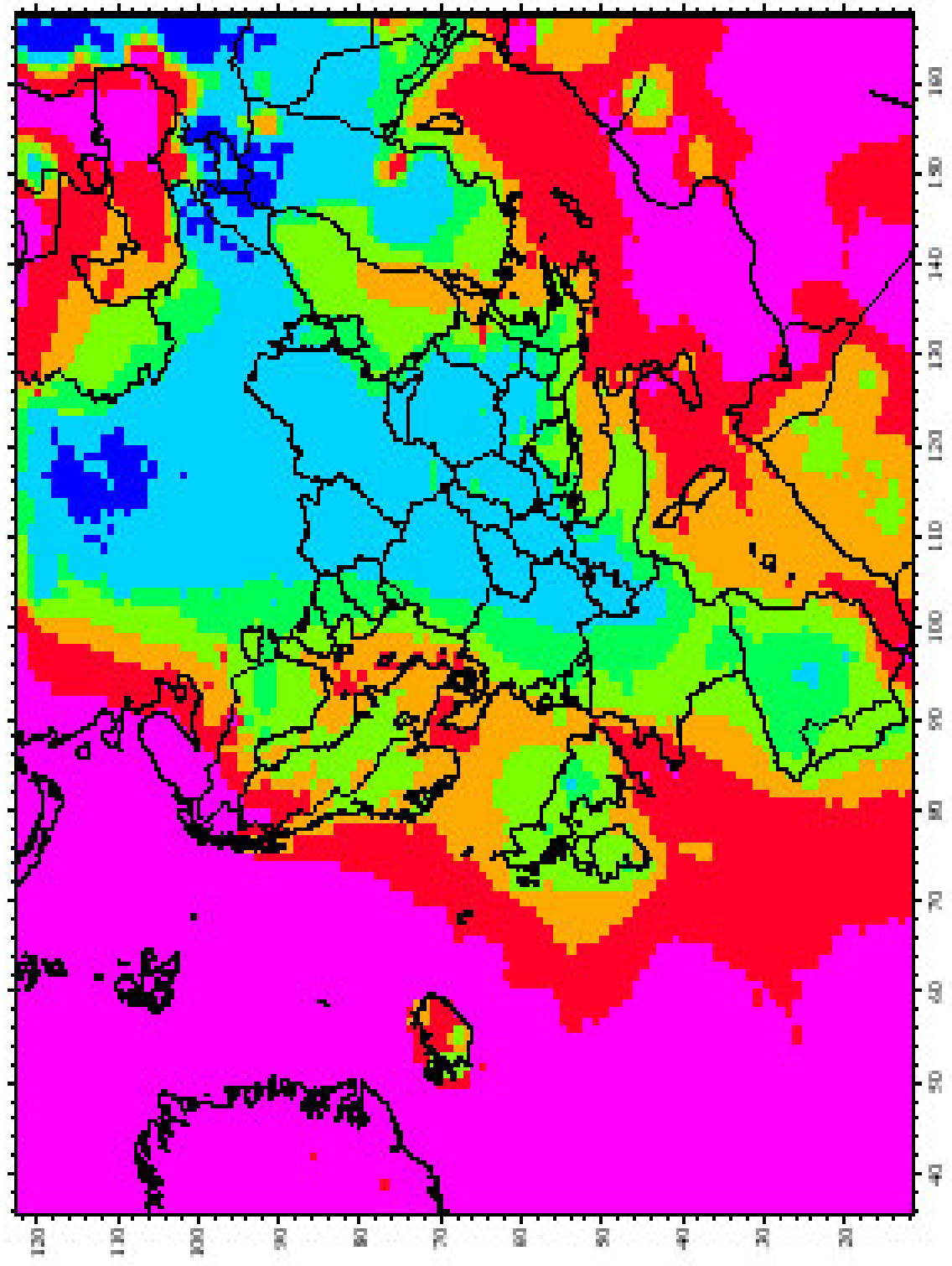
Key environmental impacts of EU ship emissions

- SO_x & NO_x: cause acidification
 - destroying lakes & forests
 - acidifying groundwater
 - eroding buildings
- SO_x & NO_x, along with ash and metals from heavy fuel combustion: form particulate matter (PM)
 - causing respiratory illness
 - harming human health
- NO_x and VOCs: react in sunlight to form ground-level ozone "smog", harming health & crops
- CO₂: contributes to global climate change

Maps showing ships' contribution to acidification & secondary PM (next page)

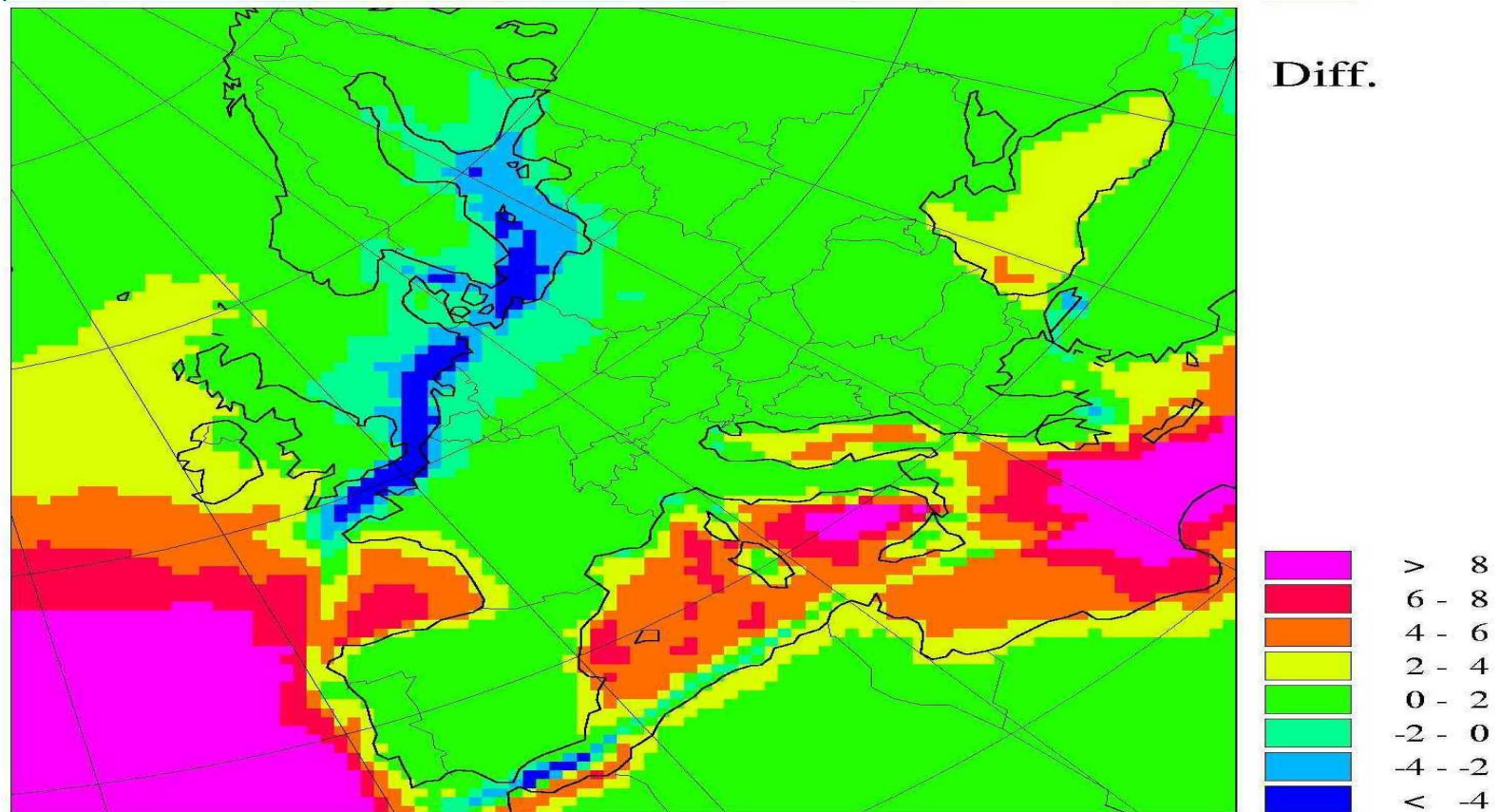


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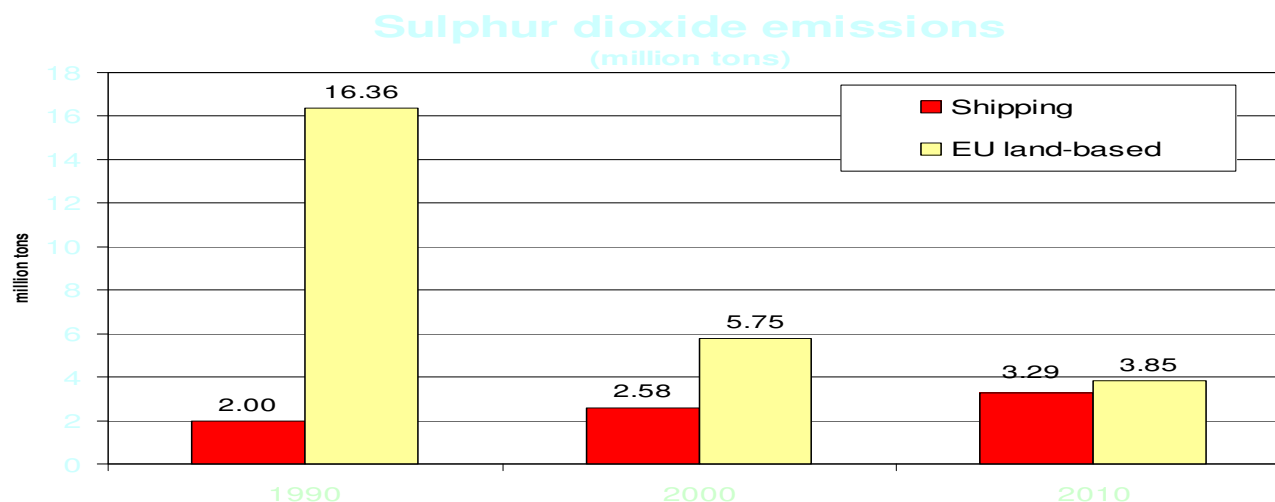
(a) Contribution from ship emissions to SLA

Map showing ships' contribution to ground-level ozone



Background – ship emissions becoming more conspicuous

- As EU land-based sources of emissions are abated eg power plants and road transport, ship emissions grow
 - Per tonne km: ships now emit at least 50 times more SO₂ than trucks. Higher NO_x than new trucks too.
 - In total volume: already 100 times more than aviation, by 2020 higher than all land sources combined.



Ship fuel sulphur content - room for improvement

27,000 ppm

10 ppm

Marine fuel sulphur Directive - finalised last week by EU Parliament

IN THE BALTIC SEA (2006) & NORTH SEA (2007)

- **All ships of all flags to use <1.5% sulphur fuel** (any grade)
- **Member States to help ensure fuel availability** (supplier register)

THROUGHOUT EU (2006)

- **Regular passenger vessels to use <1.5% S in territorial seas**

IN ALL EU PORTS (2010)

- **All ships at berth to use <0.1% S. Exemptions for:**
 - Short-stay vessels (<2 hours in port)
 - Ships switching off all engines and using shore-side electricity

SCRUBBING AS AN ALTERNATIVE

- **Exhaust gas cleaning technology (committee process to approve)**

Marine fuel sulphur Directive - Review

COMMISSION WILL CONSIDER

- **Economic instruments**
 - Infrastructure charging – with differentiation
 - Using low S fuel as a criterion in EU funding instruments
 - Ship emissions trading
 - Offsetting within fleets or groups of ships
- **More EU Sulphur Emission Control Areas (REMPEC also considering submission to IMO on Mediterranean by 2008)**
- **Lowering the 1.5% limit to 0.5%**

Clean Air for Europe (CAFE) – new work on ship NOx

- New study shows that many abatement technologies are available, and cost-effective compared to land
 - **Slide valves** reduce NOx by 20%, very cheap & easy to fit, extremely cost-effective (c \$9 / tonne)
 - **In-engine controls** cut new engine emissions by 30%
 - **Water Injection / Humid Air Motor** cuts 50% / 75%
 - **Selective Catalytic Reduction** cuts 90%
- Results informing Clean Air for Europe (CAFE) work and preparations for IMO negotiations in July
- Headline from CAFE optimization modelling is that spending €28 million on ship NOx abatement could save up to €300 million on land-based measures

CAFE – shore power

- Shore side electricity cuts local emissions – air & noise
- Plenty of good examples
 - Gothenburg - Stena, Cobelfret
 - Seattle/Juneau – Alaska cruise
 - Los Angeles China Terminal
- New study finds most effective for large regular ships
- Intend to publish EU guidelines later this year, addressed to governments and ports

Next steps: EU

- Commission service contract to *assign* ship emissions to EU MS, for GHG & air pollutants.
- 7 different methodologies, including location of emissions, fuel sales, freight loading / unloading.
- Final report by August, will inform future policy on ship GHG, and review of National Emissions Ceilings – ie possible allocation to Member States.
- Also have budget for work on CO2 index this year – refine methodology and develop possible applications.

NEXT STEPS

KEY DATES IN 2005

- Clean Air for Europe (CAFE) strategy - June
- IMO 52nd Marine Environment Protection Cttee - July
 - Workshop on GHG indexing
 - Tacit adoption of North Sea SECA
 - Negotiations on tighter NOx standards (papers submitted)
- Current EU ship emissions study finalised – August
- Launch new study on ship CO2 index – Summer
- Guidelines on shore-side electricity - Autumn
- Sulphur directive final publication - Autumn
Member States then transpose into national law.

Thank you

For more information, including links to
Commission proposals in all EU languages,
Council & Parliament documents,
consultation proceedings,
Clean Marine Award,
presentations,
studies

see our website:

<http://www.europa.eu.int/comm/environment/air/transport.htm#3>

Or contact us at env-ships@cec.eu.int