

Fragrances: iconic emerging contaminants in remote environments

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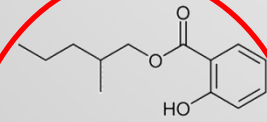
Roma, 22 – 24 settembre 2021

Fragrances as new environmental contaminants

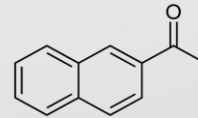
Personal Care Products (PCPs): cosmetics, detergents, soaps, toiletries...

17 long-lasting and stable Fragrance Materials (FMs)

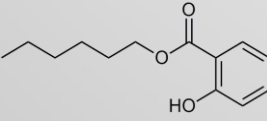
Amyl Salicylate



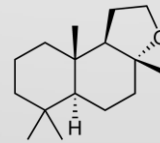
Oranger Crystals



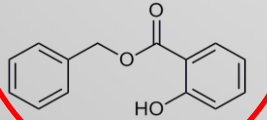
Hexyl Salicylate



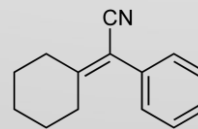
Ambrofix



Benzyl Salicylate



Peonile



*Allergenic &
oestrogenic*

*High Production Volume
>5000 t/y*

*Possible
environmental
persistence?*

Stability



Givaudan®

Marco Vecchiato
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Fragrances: Terranova Bay, Antarctica

*Stable volatile fragrances:
Long-range transport?*

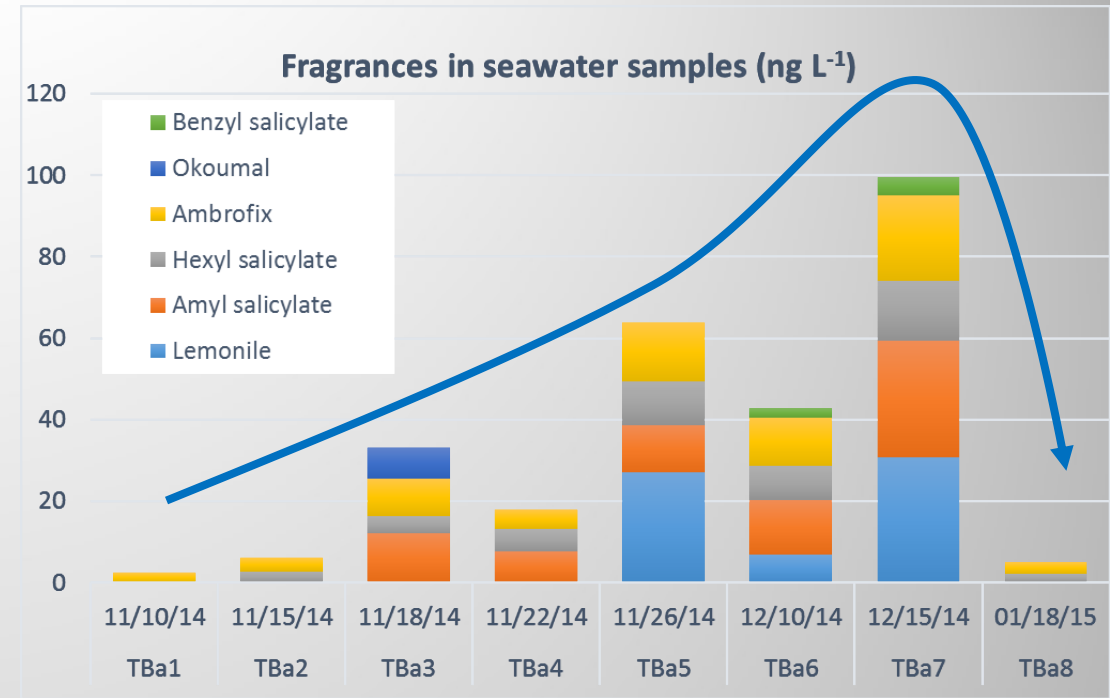
- Seawater up to 100 ng L⁻¹

- Salicylates

Local sources

vs

Seasonal melting
amplification hypothesis.

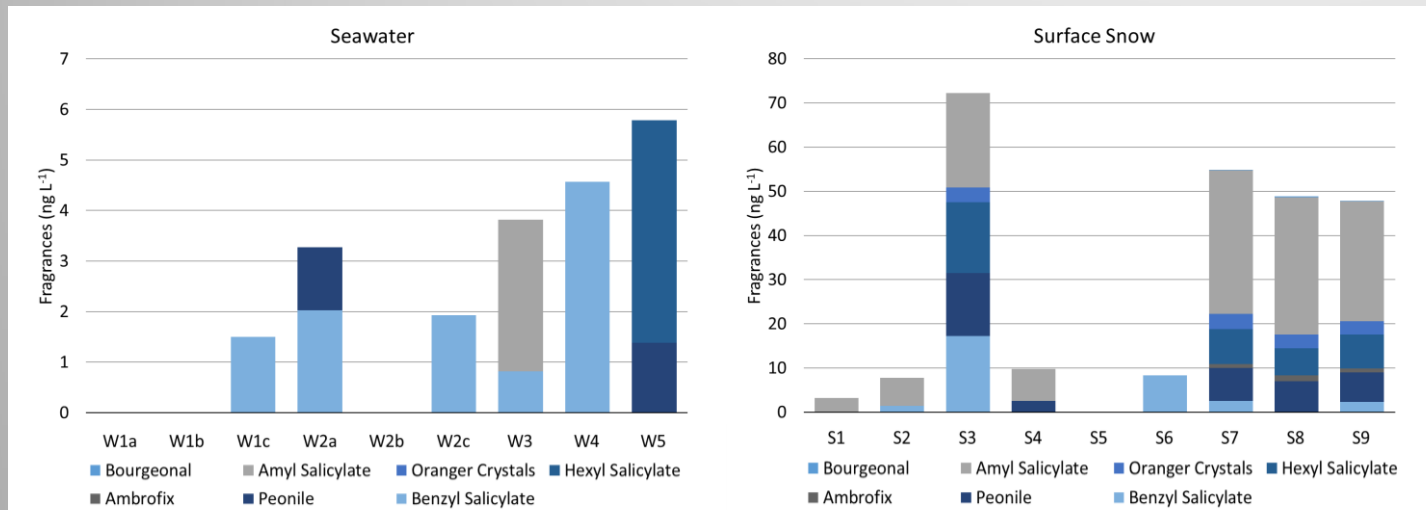
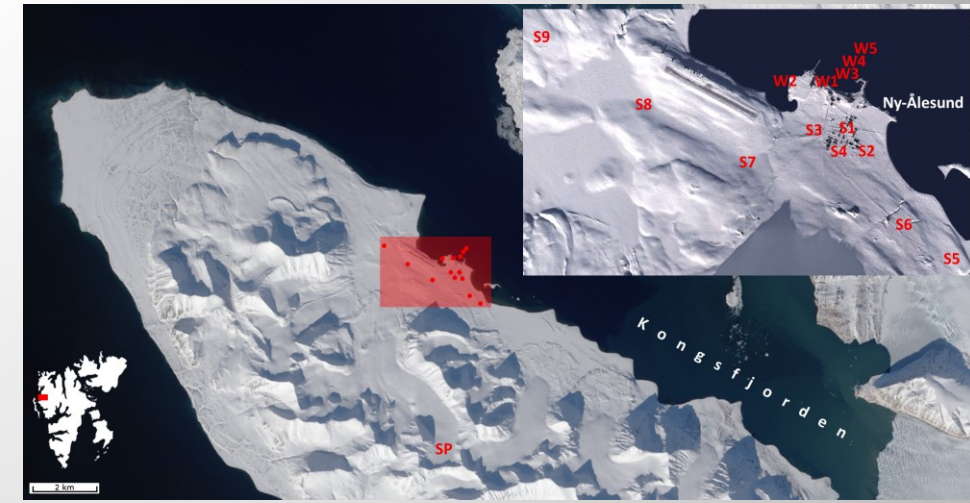


Long or Short range?

Fragrances: Ny-Ålesund, Svalbard

Long-range transport?

- Before seasonal melting
- Snow >> Seawater *→ Atmospheric deposition*
- West >> East (Prevailing winds) *→ Local sources*



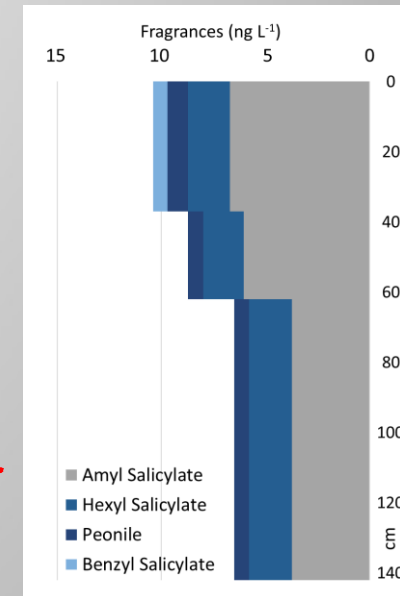
Snowpit

Austre

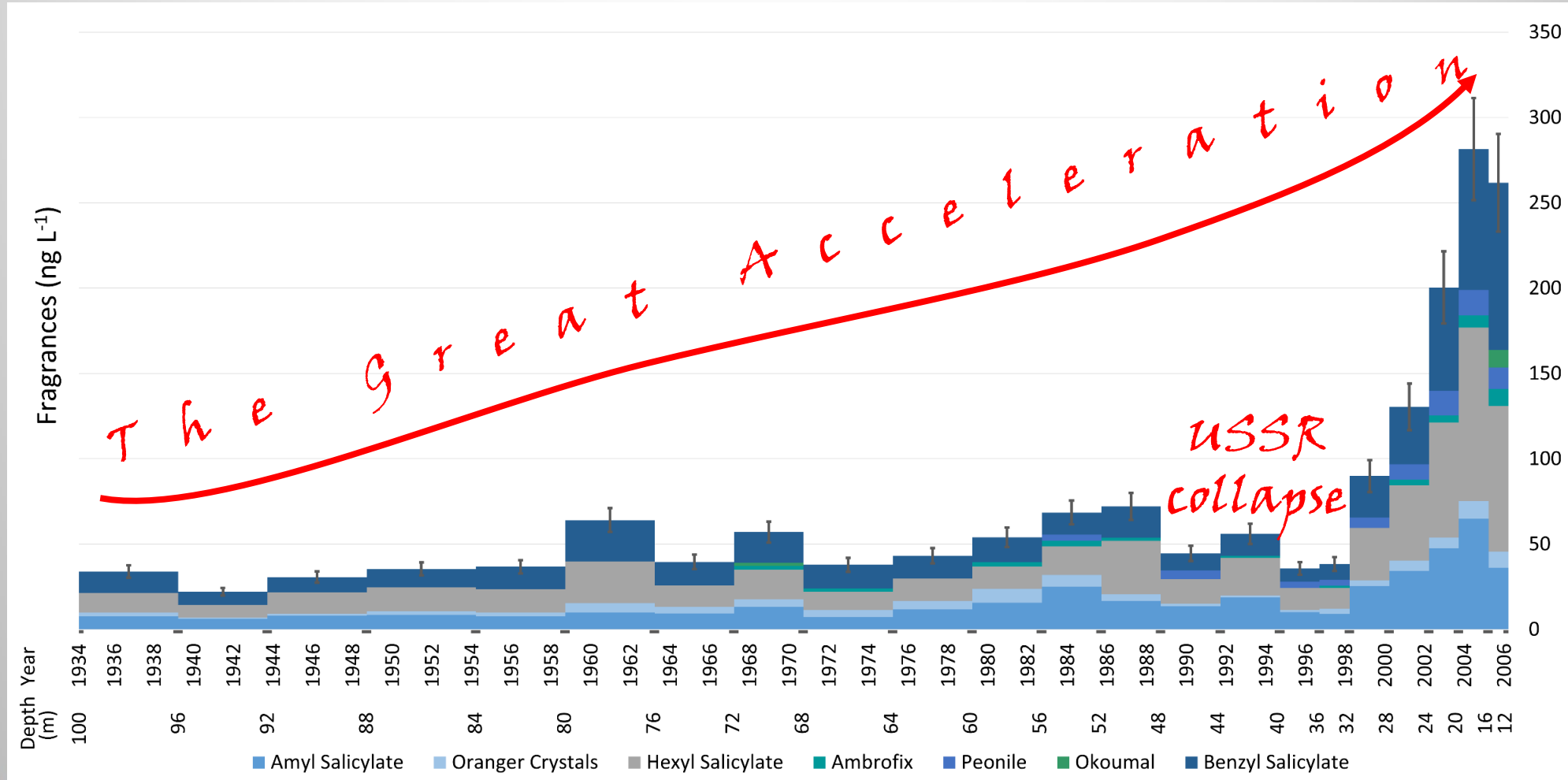
Brøggerbreen

glacier

Long-range transport!



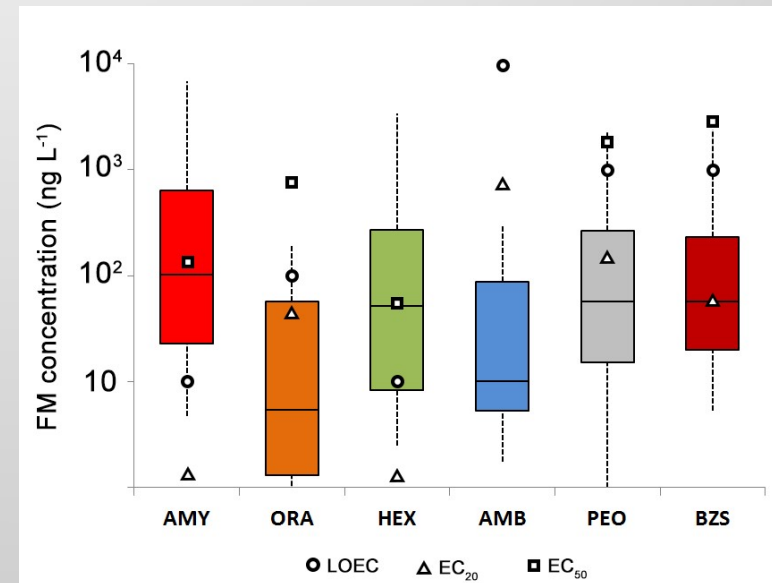
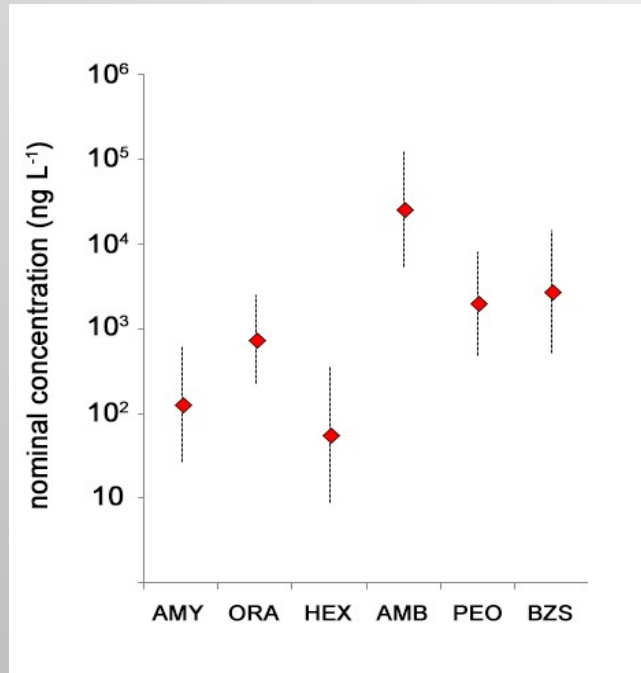
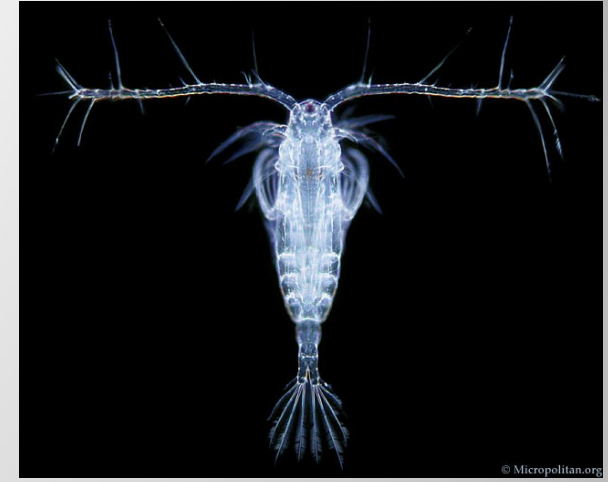
Fragrances: Elbrus ice core



Fragrances: ecotoxicity

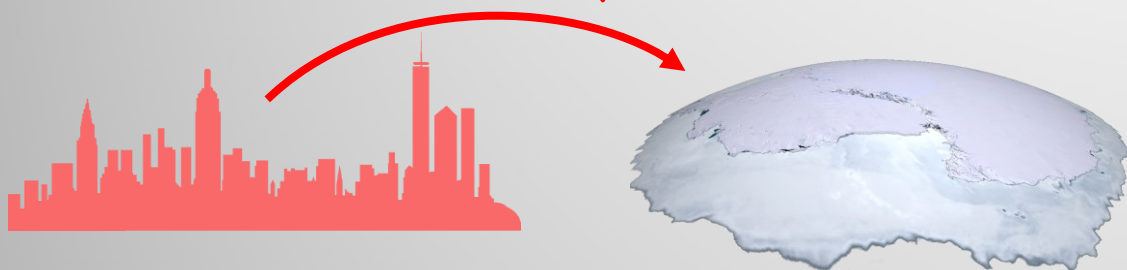
- Lack of data on chronic exposures
- Unknown effects on marine species

*Larval
development
of the copepod
Acartia tonsa*



Fragrances: Ongoing activities

*Trends, transport and
distribution in polar areas?*



AFG 2021

D'Amico RiS ID 11592



I CONVEGNO ISP
22/24 settembre 2021



Project ECO AS:TRA PNRA18_00229

Emerging COntaminants in Antarctic

Snow: sources and TRAnsport

XXXVII Antarctic Campaign 2021-2022



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