Atmospheric Chemistry II

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numbering continued from Atmospheric Chemistry I

5. Major reduced inorganic species
5.1 Ammonia *(some 50 slides)*
5.1.1 Sources
    5.1.2.1 Ammonia
    5.1.2.2 N(-III) methods: gas-particle partitioning of NH_3 / NH_4^+
5.1.2 Gas-phase chemistry
5.1.3 Particle formation (nucleation)
5.1.4 Ammonia air/sea exchange
    5.1.4.1 Equilibria
    5.1.4.2 Fluxes
5.2 Halogen radicals and hydrogen chloride *(some 30 slides)*
5.2.1 Cl atom
    5.2.1.1 Sources
        5.2.1.1.1 Cl sources in the gas-phase
        5.2.1.1.2 Heterogeneous Cl sources
    5.2.1.2 Chemistry of Cl
        5.2.1.2.1 Significance for hydrocarbon chemistry
        5.2.1.2.2 Methodology
        5.2.1.2.3 Cl chemistry in the aqueous phase
5.2.2 Br atom
    5.2.2.1 Sources
    5.2.2.2 Chemistry of Br
5.2.3 HCl
    5.2.3.1 Sources
    5.2.3.2 Methodology

6. Organics
6.1 Volatile organic compounds *(some 35 slides)*
6.1.1 Hydrocarbons
6.1.2 Peroxy radical chemistry
6.1.3 Low-molecular halogenated hydrocarbons
    6.1.3.1 Chemistry
    6.1.3.2 Effect on ozone chemistry
6.1.4 Low-molecular partly oxygenated hydrocarbons
    6.1.4.1 Acetone and acetaldehyde
    6.1.4.2 Acetonitrile
6.2 Semivolatile organic compounds *(some 45 slides)*
6.2.1 Polycyclic aromatic hydrocarbons

6.2.1.1 Substances, concern
6.2.1.2 Chemistry in the gas-phase (Finl)
6.2.1.3 Chemistry in the particulate phase (Estève)
6.2.2 Halogenated SOCs and multicompartmental substances
6.2.2.1 Introduction: concerns persistence, bioaccumulation and effects
6.2.2.2 Multicompartmental distribution
6.2.2.3 SOCs surface exchange
6.2.2.3.1 Air-sea exchange
6.2.2.3.2 Vegetation and air
6.2.2.3.3 Air-soil exchange
6.2.2.4 Multicompartmental modelling approaches
6.2.2.4.1 Multimedia box models
6.2.2.4.2 Multicompartment chemistry-transport models
6.2.2.5 Fate characteristics of persistent SOCs
6.2.2.5.1 Hazard indicators persistence and long-range transport potential
6.2.2.5.2 Long-range transport by multihopping
6.2.2.5.3 Surfactants

7 Cloud chemistry *(some 20 slides)*
7.1 pH dependency of S(IV) oxidation
7.2 Ionic strength dependency of S(IV) oxidation
7.3 Metal ion catalysis of S(IV) oxidation
7.4 Radicals in the aqueous phase
7.4.1 Photochemical sources
7.4.2 Dark sources

8. Further major particulate matter constituents *(some 20 slides)*
8.1 Carbonaceous fractions
8.1.1 Organic composition
8.1.2 Organic acids and diacids
8.1.3 Secondary organic aerosol formation
8.2 Water
8.3 Metals

9. Methodology *(mixed into chapters 5-8)*
9.0 Emission inventories *(after 5.1.1)*
9.1 Sampling methods
9.1.1 Diffusion techniques
9.1.1.1 Denuder
9.1.1.2 Diffusion scrubber
9.1.1.3 Passive sampling
9.1.2 Filter
9.1.3 Particle scrubber
9.2 Trace substance measurements after sampling
9.2.1 Chromatography
9.2.1.1 IC

9.2.1.2 GC-FID *(after 6.1.1)*
9.2.1.3 GC-ECD *(after 6.1.3.1)*
9.2.1.4 GC- N sensitive detector *(after 6.1.4.2)*
9.2.1.5 Enantioselective chromatography *(after 6.2.2.3.1)*
9.2.2. Spectroscopy
9.2.2.1 NMR
9.2.2.2 Chemiluminescence *(after 9.3.1.1)*
9.3 Trace substance measurements in situ *(after 9.2.1.2)*
9.3.1 Concentration measurement
9.3.1.1 Differential optical absorption spectroscopy
9.3.1.2 IR
9.3.2 Flux measurement
9.3.2.1 Gradient techniques
9.3.2.2 Eddy covariance
9.3.2.3 Relaxed-Eddy accumulation