CRRC Dispersant Research Seminar, Red Banks, 1-2 February, 2006

Panel discussion
On-going and future dispersant research:

Chemical (and Physical) Parameters that influence on Overall Effectiveness

Per S. Daling
SINTEF
Dept. of Marine Environmental Technology
Trondheim, Norway

(per.daling@sintef.no)

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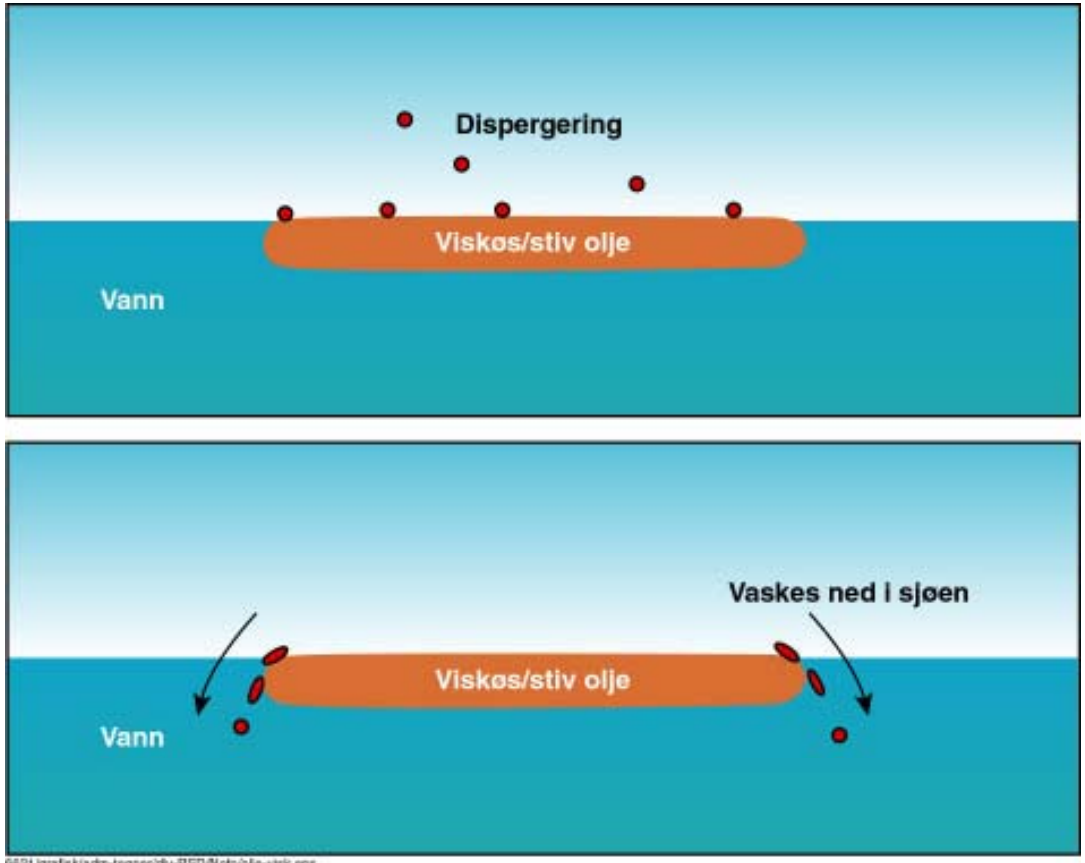
If ”time window” for use of dispersant has passed:

Dispersant droplets are not migrating into the oil / emulsion → “Roll off”-effect

Due to:

1. **Too high viscosity**:
   Is very oil specific:
   1000 → 30 000 cP

2. **High elasticity (oil is solidifying):**
   If the pour point come 10 - 15 ^{o}C higher than sea temperature



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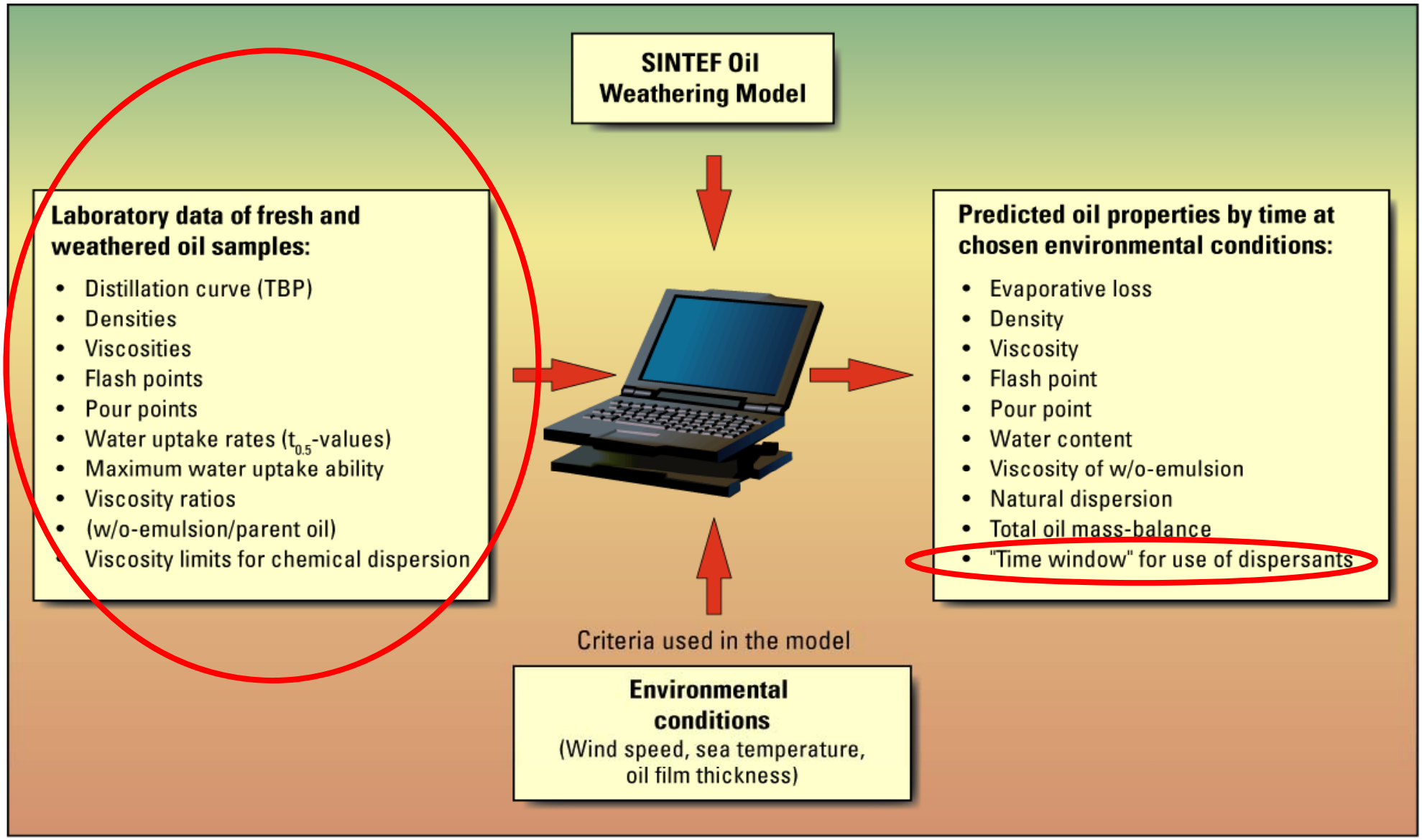
Oil Weathering and Dispersibility Methodologies



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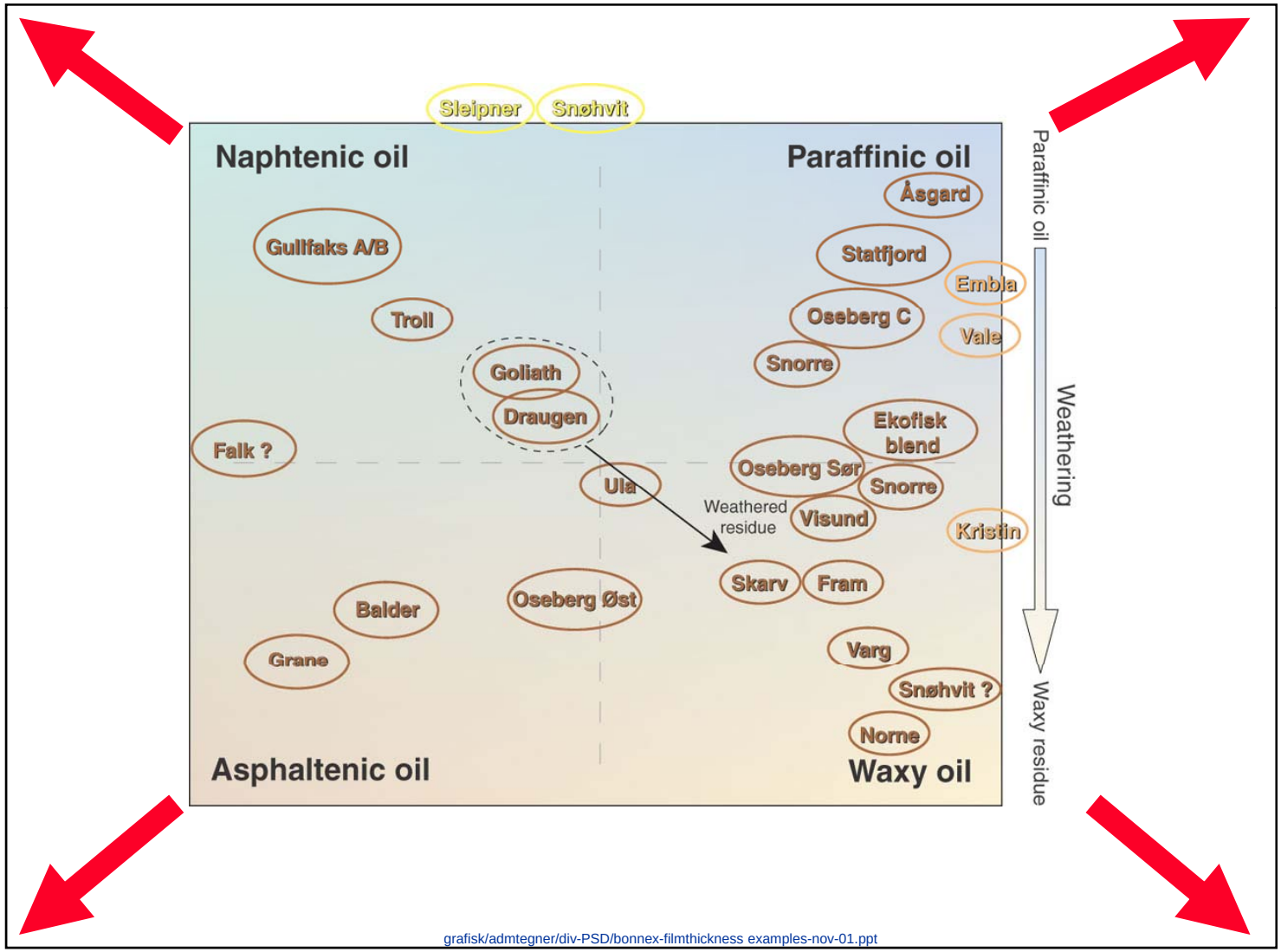
"Categorization of North Sea crude oils
(based on laboratory weathering and dispersibility studies)



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Protocols are available / or basis for further refinements:

- **Bench-scale studies** / Protocols
  - Step-wise weathering of oils
  - Dispersant effectiveness testing / various weathering degree / various mixing energy

- **Meso-scale basin studies**

- **Small-scale field tests** (cost-effective)

⇨ **Data input to models and scenario simulations**

⇨ **Basic input for contingency planning / NEBA / decision-making**

→ **Great potential for better inter-laboratory harmonization and co-operation !!**

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Effectiveness of dispersants /dispersibility of oils

Knowledge gaps:

1. **Further characterization of the weathering properties and dispersant effectiveness on a <u>wider range</u> of relevant crude oils**
   ⇨ basis for further improvements of "general" algorithms
   (more robust predictions <u>without</u> need for extensive lab. studies)

2. **Better knowledge of the potential for use of dispersants on various <u>heavy fuel bunker oils</u> (different IFO-grades) under different spill situations (i.e. sea temperatures, energy conditions, dosages)**

3. **Potential for operational use**
   - in <u>cold and ice-covered</u> areas
   - in <u>low-salinity</u> areas (e.g. Baltic, Caspian, near river estuaries)

4. **Fundamental mechanisms:**
   - oil /dispersant interaction (leaching)
   - breaking waves: natural dispersion / sub-merging of weathered oil

Here we are on the right track ! (ongoing R&D projects)