

Reanalysis in offshore wind industry and impact on metocean activities

Presented by: *Natacha Fery*



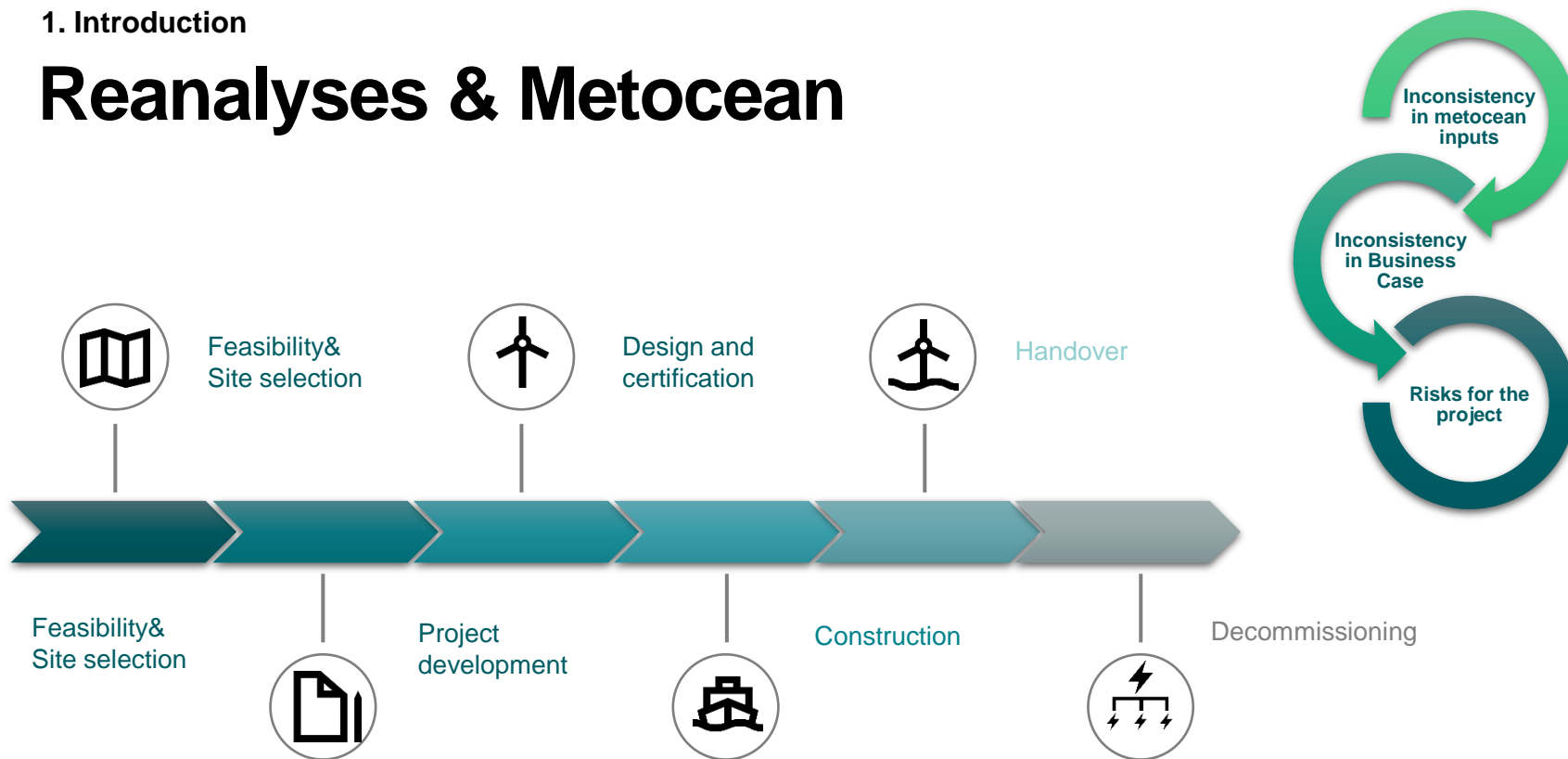
Agenda

1. Introduction
2. How do we use reanalysis products
3. Positive aspects about reanalysis products
4. Limitations and Wishlist



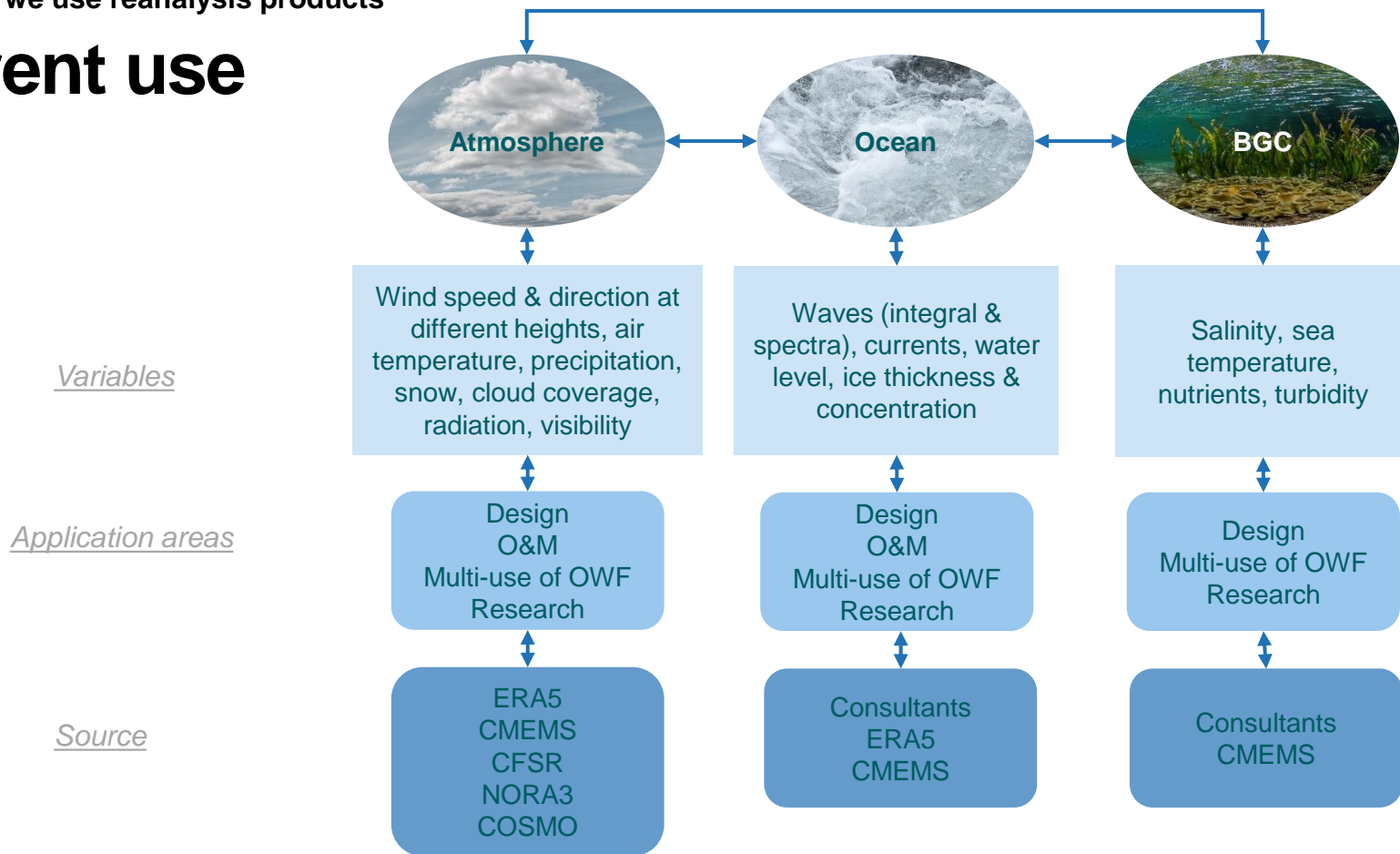
1. Introduction

Reanalyses & Metocean



2. How do we use reanalysis products

Current use



3. Positive aspects about reanalysis products

What we like

- **Variety** of meteorological and oceanographic parameters
- **High-resolution** products (regional reanalysis)
- **Long-term** hindcast (since 1979)
- **Data assimilation** and validated products
- Continuous **improvements** of the model physics
- **Public** datasets



4. Limitations and Wishlist

Where we see limitations

- **Global vs regional** (global reanalyses usually have a poorer time and space resolution leading to incorrect representation of the extremes)
- **Time** coverage and product **updates** (longer datasets better for extreme value analyses and workability)
- **2D vs 3D** (2D not always representative of the water column dynamics, near seabed conditions as relevant as those at the surface)
- **Misalignment** between WRA input and metocean applications (use of different reanalyses for yield assessment and metocean numerical models)
- **Ice + coupling** with other modules (atmosphere and ocean)



4. Limitations and Wishlist

Wishlist

- A unified coupled reanalysis with high resolution for >40 years (North Sea/Baltic Sea)
 - ✓ And their inclusion in ocean models (i.e. waves)
- Include scenarios of climate change
- Modelling of the impact of neighboring OWFs on atmospheric, oceanographic and BGC parameters
 - ✓ Collaboration between meteorological offices and consultants for improved and free local numerical models
- Easy access and storage of large datasets (limitation with downloads)
 - ✓ Web-based GUI or APIs





Thank You 😊



Contact

Vattenfall Vindkraft AB

Natacha Fery
(Senior Metocean Engineer)

natacha.fery@vattenfall.com

Maziar Golestani
(Head of Metocean)

maziar.golestani@vattenfall.com