# Discussion Summary

Consistency at the air-sea interface

- Things to move away from

  – z_0 based coupling

  – Assumption of a logarithmic wind profile

- Things to move toward

  – stress-based coupling

  – Embedding models into each other (such as is as done for ocean/sea ice)

  – A unified model of the interface

Increasing complexity /further into the future?

- What needs to be conserved?

  – Stresses

  – fluxes

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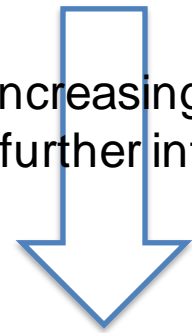
Observations

- Supersites

  – What do we want to measure, and where?

  - Measure all processes simultaneously across all scales (?)

  – Are current measurement techniques/equipments sufficient?

  – How many supersites are actually needed to constrain our models?

  – The more simultaneous measurements, the better (can't foresee necessarily the uses)

- How to use the data? i.e. to separate between products, assimilation, validation

- Data management: important, standards needs to be adopted

  – Obs. Community to learn from modelling community here

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Simplifying wave models

- Consider carefully where complex wave models required, and where they are not

  - What parameters are needed/used?

  - What's the cost? What does this take away from?

  - Efficiency (state vector required/used vs. the full 2d spectrum computed)

- Simpler wave models the way forward for inclusion in climate models?

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Complexifying wave models

- Whats feasible? Whats important?

- Unified modelling approach (move away from component way of thinking)

- Embedding approach (e.g. ocean/sea ice)

- Boundary layer focus

    – Need to start resolving BL to give ourselves chance to represent the processes going on here

    – How far do we need to go? Can go infinitiely far down this path (whole turbulence energy cascade representation), but how far is needed?

Machine Learning

- Wave modelling to become more and more data driven in satellite era?

- Replacing aspects of traditional models, rather than whole thing

- Hybrid model, use physics for what we know, ML for what we don't

- Can't move away from spectra YET: good directional spectra critical for coupling

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Defining community direction(s)

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