somebody make a fancy title page

Introduction

somebody write an introduction
somebody fix the references

- here is where we got the matlab file from: `http://www.seaice.dk/exercises/task3/Matlab/FW_funktion2_is.m` (forward model by Dorthe Hofman-Bang)
- description of reference data: `http://www.seaice.dk/undervisning/Sotiris/SICCI_RRDB_Manual_v2.01_20170717.docx`

1 Validation of Forward Model

The forward model computes from a set of ocean and atmosphere parameters the brightness temperatures expected to be measured by a satellite radiometer. The input parameters are listed in Table 1, and the output parameters include values for both horizontal and vertical polarization at 6.93 GHz, 10.65 GHz, 18.70 GHz, 23.80 GHz, and 36.50 GHz.

	Forward Model		Reference Data	
	Abbrev.	Unit	Abbrev.	Unit
Ice concentration	C_is	fraction	ci	fraction
MY-fraction	F_MY	fraction		
Ice temperature	T_is	°C	istl	K
Water vapour	V	mm (columnar)	tcwv	kg/m^2
Cloud liquid water	L	mm (columnar)	tclw	kg/m^2
Wind speed	W	m/s	ws	m/s
Sea surface temperature	T_ow	°C	sst	K

Table 1: Atmosphere and ocean parameters entered into the forward model

This forward model was validated by comparing its results to a set of reference data from ESA's "Sea Ice Climate Change Initiative". The reference data consists of brightness temperatures at the relevant polarizations and frequencies as measured by the AMSR (?) radiometer mounted on the satellite xyz, and modelled atmosphere and ocean parameters. These parameters were converted as follows to match the units used in the forward model:

$$\begin{aligned} [^\circ C] &\leftarrow [K] - 273.15 \\ [\text{mm}] &\leftarrow [\text{kg/m}^2] \end{aligned}$$

we should comment upon:

- calibration differences mentioned in Leif's email
- wind direction (several components given in the reference data)
- ice temperature layers (several given in the reference data)

- MY ice fractions not being given in the reference data

somebody put the reference data atmosphere and ocean parameters into the forward model and look what happens