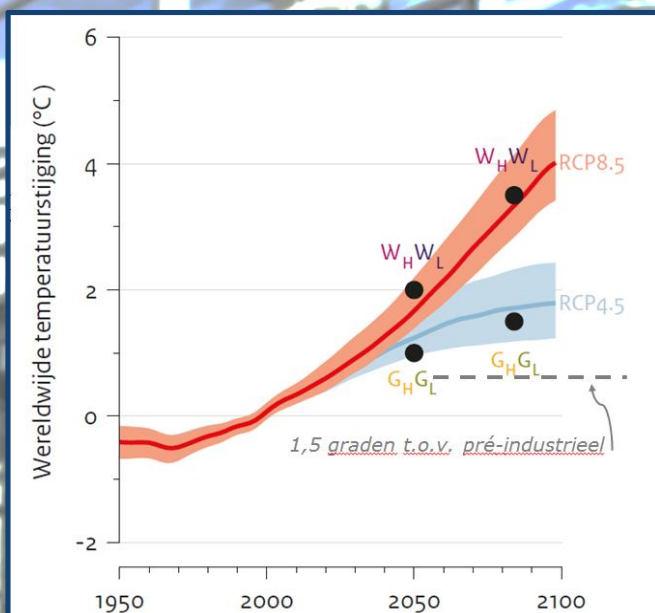




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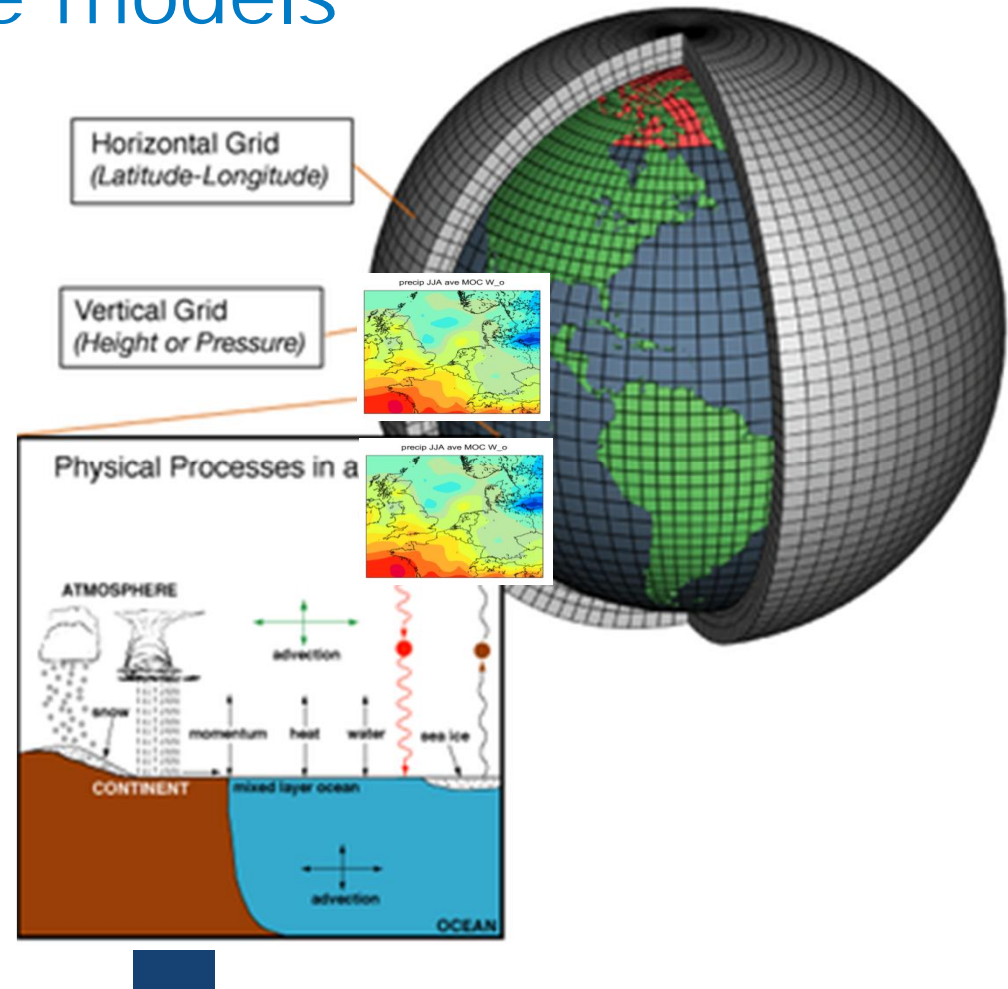
The evolving complexity of climate models

Bart van den Hurk
KNMI





Weather and climate models

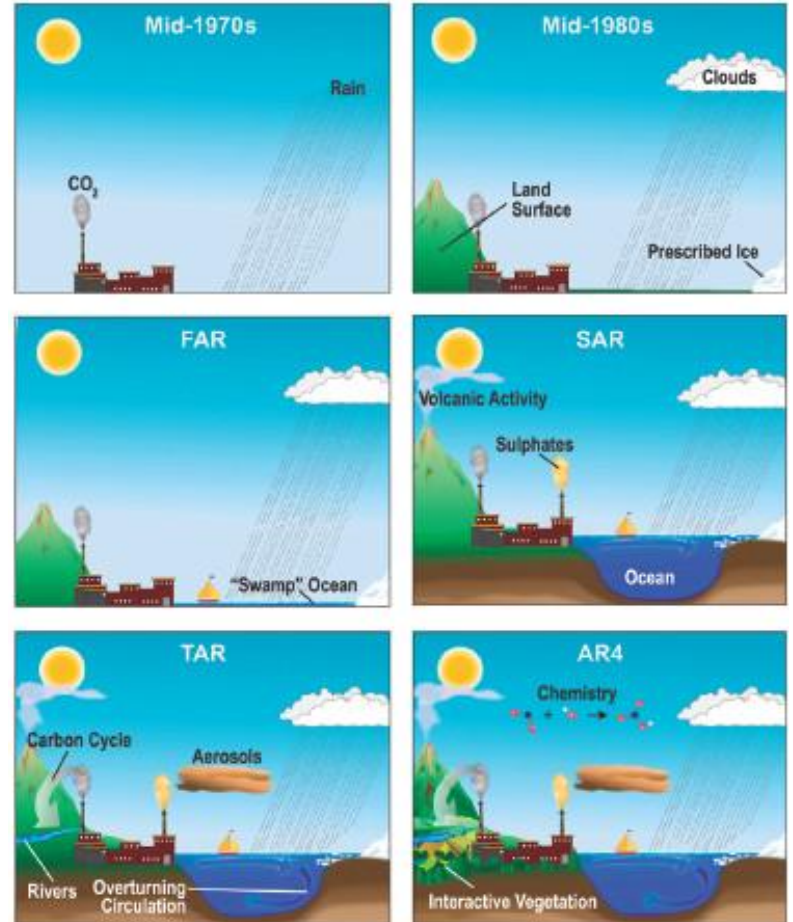




Their evolution



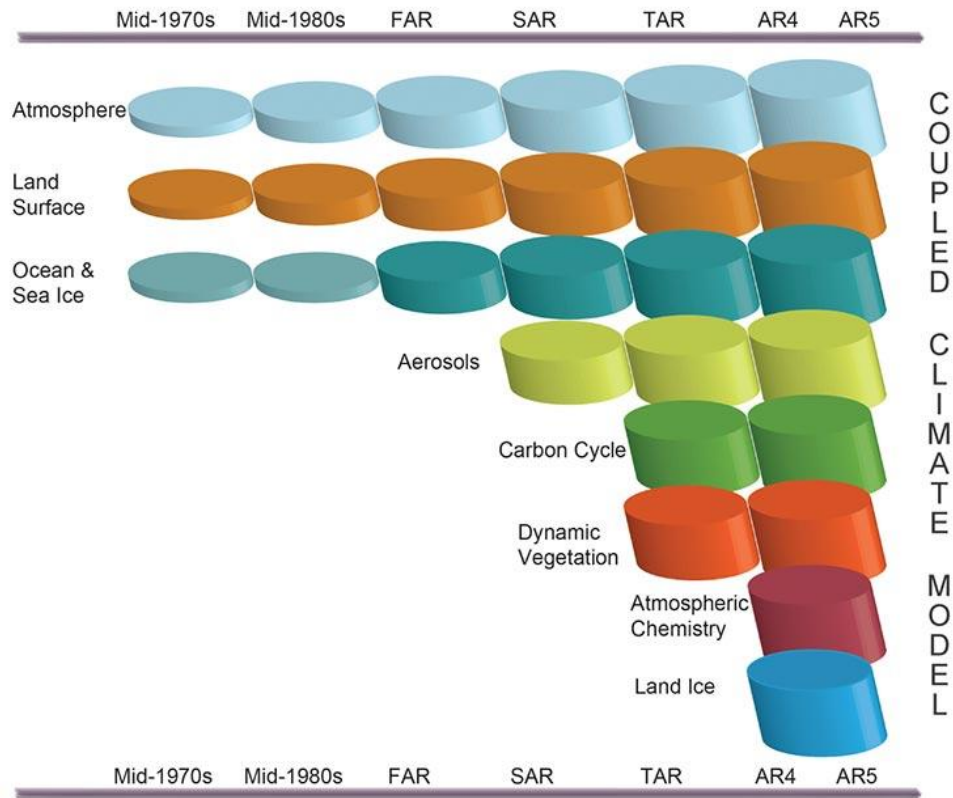
The World in Global Climate Models





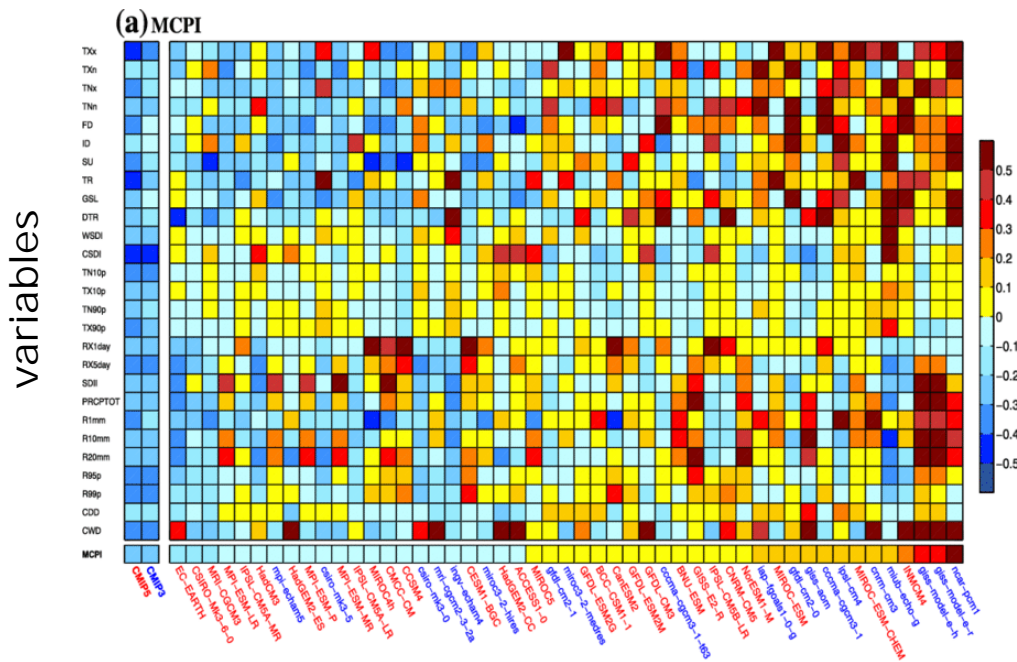
Their evolution

Increasing Climate Model Components

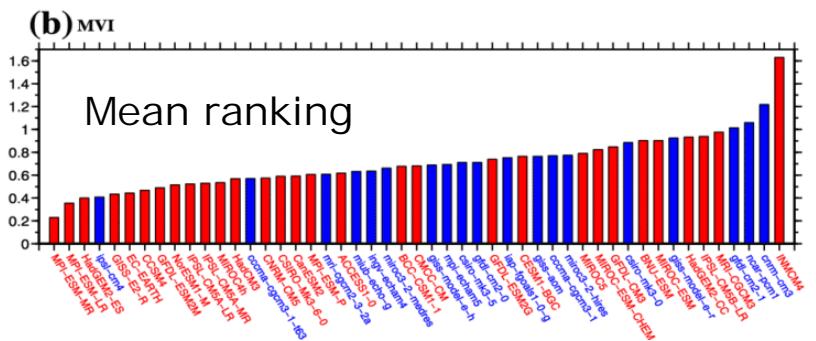




About performance



Relative error expressing quality of seasonal cycle of ECVs over China (smaller values = better)



CMIP5 models
 CMIP3 models

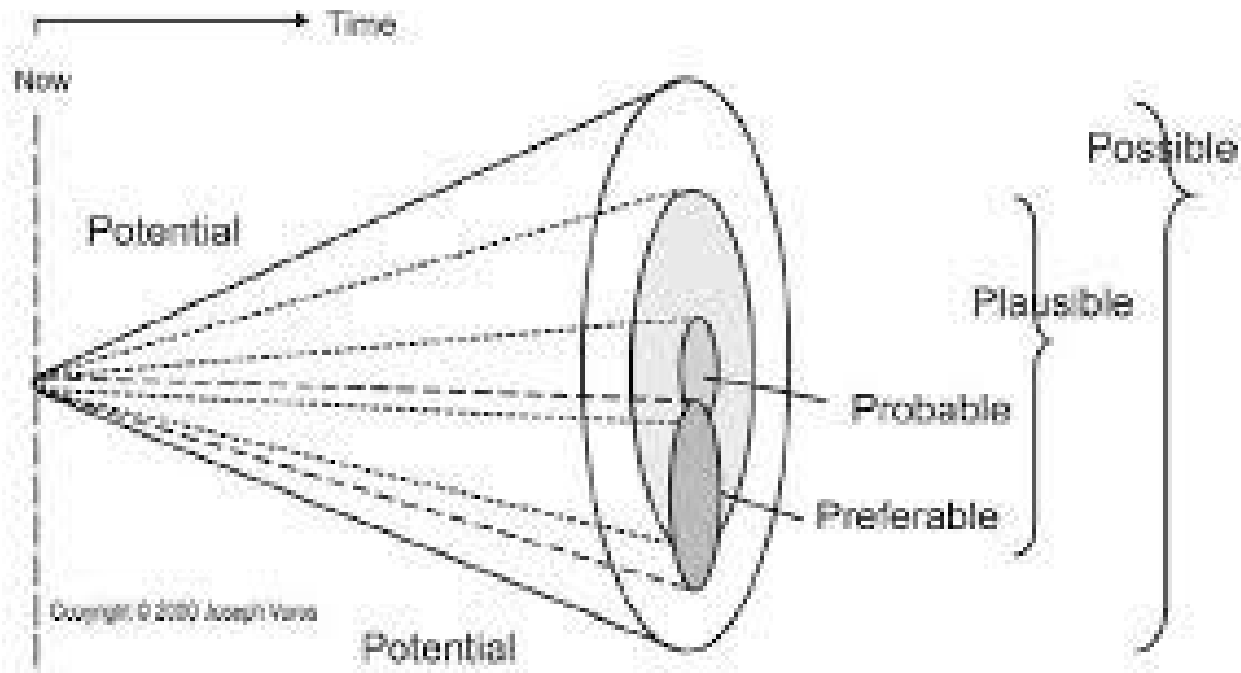


- › a Portrait diagram displaying the relative error metrics for both CMIP5 (red) and CMIP3 (blue) of the annual cycle climatologies (1981-2000) with respect to the observations. b Display of model variability index, defined as the multivariable mean of the ratio of simulated to observed variance for both CMIP5 (red) and CMIP3 (blue) models. Smaller values in (a) and (b) indicate a better agreement with the observations, and the models are ranked according to the model climate performance index (averaged over relative error metrics of the 27 ETCCDI indices) in (a) and the model variability index in (b)



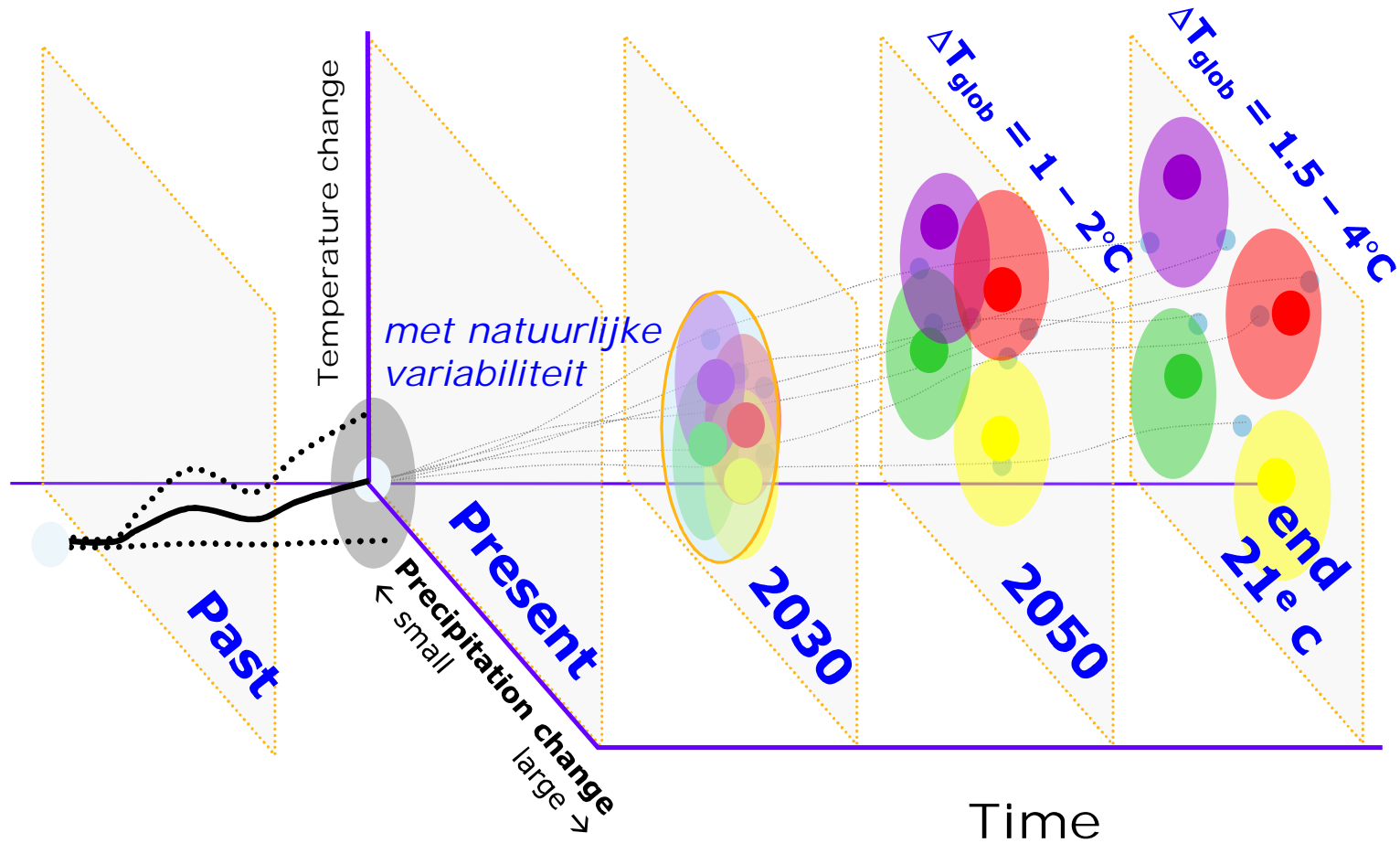


Sampling the scenario space



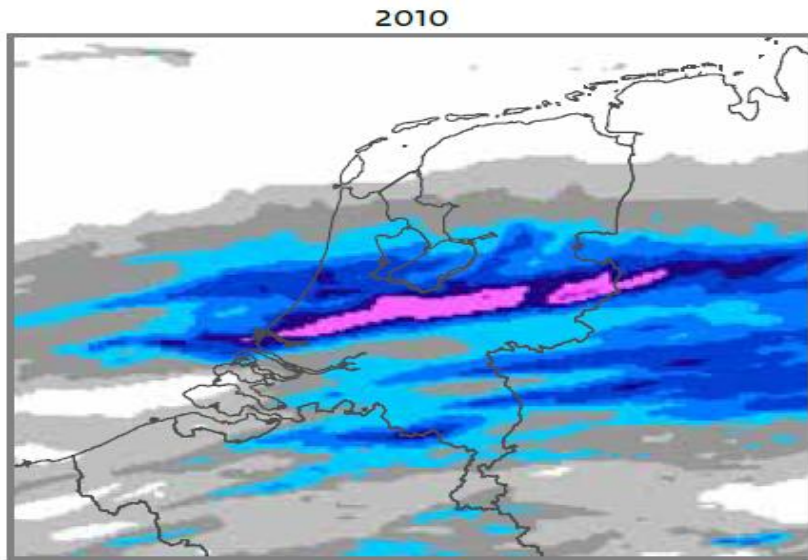


Rationale of KNMI scenarios



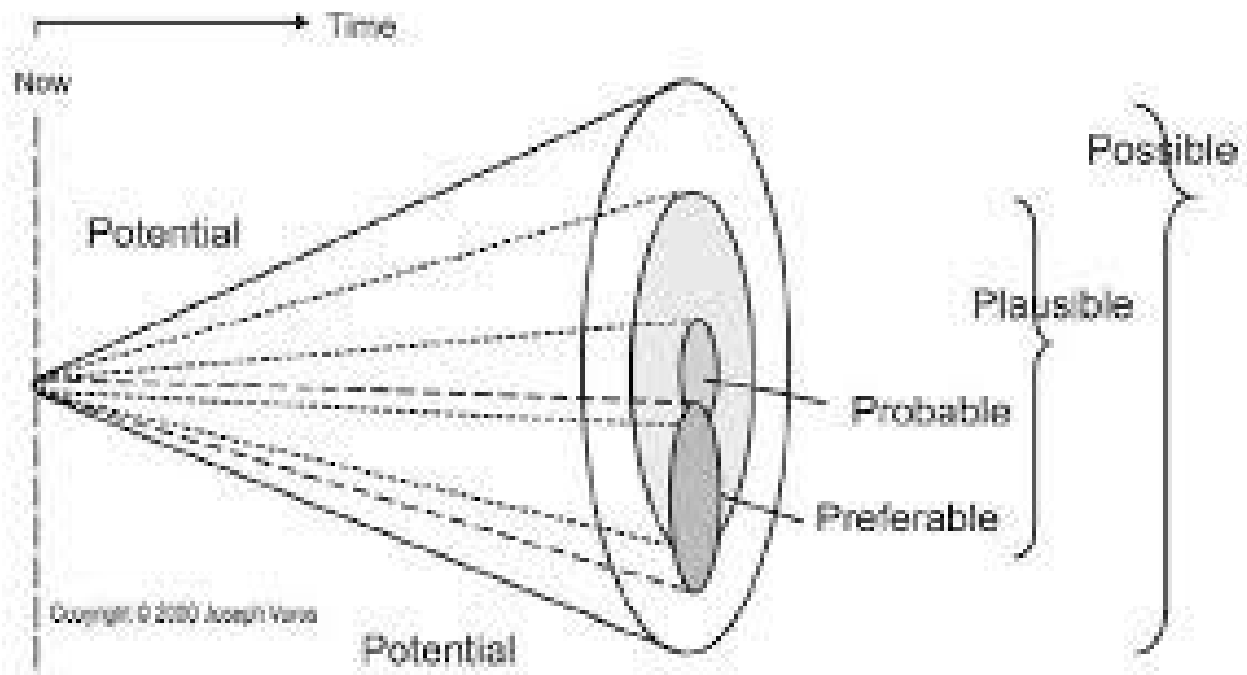


Constrained narratives (“Future weather”)





The essential discussion





The essential discussion

- › Different model complexity serves different model purposes
- › “More” is not always “Better”
- › “Justification” is as important as “prediction”
- › Be creative in the experimental design, not only in the model set-up

