

A NEW INDEX TO CALCULATE RISK OF WATERSPOUT DEVELOPMENT

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I. INTRODUCTION

In the Netherlands a significant development of waterspouts occurs in (late) summer season. During the period June-October several dozens of spouts are reported every year. In 2006 in August only, more than 80 funnel clouds (the larger part over water) have been noted.

Especially in summer seasons with persisting warm weather, the shallow waters (like the IJsselmeer and Waddenzee) in the Netherlands rise rapidly in temperature. In weather patterns with favourable "cyclonic" circulations many spouts could than be reported on the same day. This is attracting also a lot of media-attention.

II. PRESENTATION OF RESEARCH

To get a better idea of the conditions in which spout-type funnel clouds will occur, a research project has been started in spring 2007. This project contains the development of a computer based forecast method to estimate the risk of spout-type funnel cloud formation.

The forecast method now developed, contains an Instability-index combining four parameters.

This Index, still in a quite preliminary phase, finds its base in four circumstances, favourite at funnel cloud development for the (water) spout type funnels:

- =Wind shear 0-3 km.
- =Laps-rate 0-500m.
- =Average humidity 0-1 km.
- =10m wind speed.

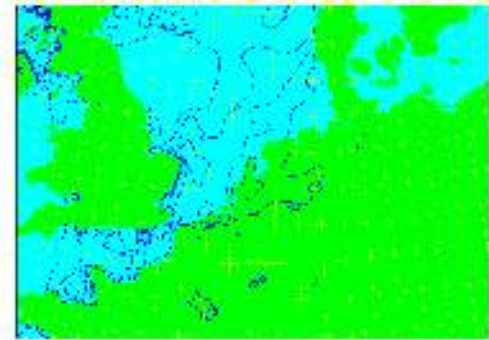
The combination of those four parameters, each with its own "weight", should produce the so-called KHS-index, (named to its developers Kuiper and Van der Haven the **Kuiper Haven Spout** index).

The calculation of the index is implemented in the Hirlam-model running on a daily base at KNMI.

III. RESULTS AND CONCLUSIONS

Because of its very recent implementation in the Hirlam model, the results of the index calculations in reference to spout-reports are not available yet. During the coming summer season an intensive guidance of the model-output in reference to spout-reports will be carried out.

Fine-tuning of the four parameters in this combined Index has to be carried out too. At the Conference first results of this KHS-Index research project will be shown.



IV. REFERENCES

- Werkmethodiek Hoosverwachtingen
- Kuiper J., Haven M.v.d.
- Internal memorandum KNMI-WA. 2006/2007