

CONCLUSIONS AND RECOMMENDATIONS

Chairperson: G. Szejwach

Introduction

The purpose of this last session was to review the main conclusions and recommendations of the Workshop as well as to assign actions to the various participants. The need for further Workshops and Sub-working Groups meetings was also discussed.

Each session or panel Chairman had a chance to present, in turn, the relevant conclusions and recommendations during the last session. Participants had then an opportunity to raise additional points or final remarks. Most conclusions and recommendations are listed in the dedicated session Chairman's report, therefore the present summary often repeats points addressed in these reports.

There was a short discussion on the opportunity to include a statement on the usefulness of winds derived from ground based profilers in NWF models. It was agreed that unless wind profilers were considered as "ground truth" to assess the quality of CMWs, any such statement would not be relevant to the scope of the present Workshop.

Main Conclusions

First of all, participants unanimously felt that the workshop had been extremely useful as for the first time, data/products providers and users had a chance to meet to specifically address the problems associated to derivation and use of Cloud Motion Winds. In fact a large majority of participants were surprised by the large attendance at, and interest for, the workshop. Major conclusions follow:

- C.1 The objectives set for the Workshop were definitely met and it was recognized that despite the difference between satellite systems it was essential to continue and improve exchange of information and experience within and between the communities of users and data providers.
- C.2 A "standard" extraction technique of Cloud Motion Winds can only be achieved with identical systems. This is not the case at present and will not be the case for some time. This should not, however, prevent data providers to exchange results, experience and to increase comparisons between techniques and systems.
- C.3 The potential operational use of the Water Vapour channel for high level CMW derivation was demonstrated.

- C.4 Accuracies of the order of 1 m.s^{-1} should be possible to achieve provided that more rapid scan modes than the present 30-minute cycle are operated. Although this figure was not specifically demonstrated, participants agreed unanimously that both quality and quantity of CMWs would increase with a 15 minute interval between consecutive images.
- C.5 The quality (accuracy) of the Japanese produced winds has dramatically improved since new techniques are applied.
- C.6 Fully automated techniques complemented by possible additional manually derived CMW's in difficult situations were felt most appropriate for operational CMW's production.
- C.7 No consensus was achieved on the use of forecast wind fields produced by Numerical Weather Forecast models as constraints in the CMW production process.
- C.8 There are physical problems due to the fact that Clouds Motion Vectors are not always representative of the wind field. However, the major source of problem still remains the Cloud Height assignment. Use of absorption channels has led to improvement in this field but it is believed that use of stereo techniques would largely reduce the associated errors for the most critical cases.
- C.9 Final manual quality control to edit and enhance the quality and number of CMWs is still required.
- C.10 Higher spatial resolution of IR channels would lead to further improvement in the CMWs.

Recommendations

There is no particular priority attached in the order for following the list of recommendations.

- R.1 The overall goal is to eliminate the "black list" of CMWs.
- R.2 Data flagging for CMW quality should be considered and harmonised.
- R.3 One should carefully consider additional pertinent information to be transmitted with the wind value.
- R.4 Sub-Working Group(s) should urgently address product transmission (codes, flags, ...) quality and validity, as well as common procedures whenever practical and possible.
- R.5 Comparison with "ground truth" data should include aircraft observations whenever possible.

- R.6 One should consider regional capabilities and inclusion of regionally derived winds on the GTS (this was controversial).
- R.7 Consolidated comparison campaigns (addressed within CGMS) should be established.
- R.8 Future systems should consider the feasibility of more rapid scan modes.
- R.9 Simultaneous use of Meteosat-3 and 4 should be considered for stereo height assignment.
- R.10 A planning meeting and/or Working Group meetings should be planned in conjunction with the COSPAR meeting in 1992.
- R.11 Another Workshop should be planned for 1993 by the same sponsors.
- R.12 Consolidated Workshop Conclusions and Recommendations should be forwarded from the Director of EUMETSAT to CGMS Members.
- R.13 A "Cloud Motion Wind" Group with associated Terms of Reference should be established to continue and coordinate relevant actions and implementation of recommendations.

Actions to Participants

The following actions were given:

- A.1. Graeme Kelly to establish a consolidated proposal for the sub-group on data distribution (improved code, flagging, additional information on cloud extraction procedure).
- A.2. Kit Hayden to consider a meeting of the group following the special COSPAR session on cloud motion winds.
- A.3. Eumetsat to establish a consolidated proposal for validation in the frame of the CGMS activities and propose Terms of Reference for the "Cloud Motion Wind" Group.
- A.4. All to establish OMNET Mailboxes. D. Miller to investigate the setting up of a dedicated "Satellite Winds" bulletin board.
- A.5. EUMETSAT to investigate the publication of a series of newsletters to be circulated within and outside of the group to present activities and progress.

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