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**GLOBAL REPROCESSING OF ATMOSPHERIC MOTION VECTORS (AMV)
INCLUDING ALL GEOSTATIONARY SATELLITES**
In response to CGMS Recommendation 34.17

This working paper discusses the status of AMV reprocessing at NOAA/NESDIS. The Numerical Weather Prediction and Climate communities have a need for satellite-derived AMV datasets that are reprocessed from historical satellite datasets that may exist in a satellite operator's historical archive. NOAA/NESDIS recognizes the importance and impact that reprocessed AMVs can have on reanalysis efforts undertaken by NWP centers. To this end, NOAA/NESDIS is looking for opportunities (with some associated funding) to develop a capability to reprocess GOES AMVs using its state-of-the-art AMV algorithms.

Global Reprocessing of Atmospheric Motion Vectors (AMV) including all Geostationary Satellites

1. Introduction

Atmospheric motion vectors (AMVs) derived from satellites continue to play a key role in operational Numerical Weather Prediction (NWP) assimilation systems as these observations provide important information on the atmospheric wind field, particularly over regions of the globe that are traditionally void of any other observations.

The use of satellite-derived AMVs, however, is not limited to near real-time operational NWP data assimilation systems. The NWP and Climate communities have a need for satellite-derived AMV datasets that are reprocessed from historical satellite datasets that may exist in a satellite operator's historical archive. EUMETSAT, for example, has developed a capability to reprocess AMVs, using their state-of-the-art AMV algorithms, from their historical Meteosat satellite datasets (Gustafsson et al, 2002). The reprocessed Meteosat AMVs were shown to have a positive impact on the tropical mean wind analysis performed during the European Center for Medium Range Weather Forecasting (ECMWF) ERA-40 reanalysis effort.

2. Status of AMV reprocessing at NOAA/NESDIS

At the present time, the only set of reprocessed AMVs available at NOAA are polar cloud-drift AMVs derived from the Advanced Very High Resolution Radiometer (AVHRR) instrument aboard NOAA's operational polar orbiting satellites for the period 1981-2006. (Dworak, et al, 2006). The cloud tracking process and attendant quality control schemes used to generate these AVHRR AMV datasets are based on the established procedures (Velden et al, 2005) used for generating AMVs from NOAA's Geostationary Operational Environmental Satellites (GOES). It is expected that these reprocessed AVHRR cloud-drift AMV datasets will serve as critical inputs to future reanalysis efforts under taken by operational NWP centers.

NOAA/NESDIS recognizes the importance and impact that reprocessed AMVs can have on reanalysis efforts undertaken by NWP centers. To this end, NOAA/NESDIS is looking for opportunities (with some associated funding) to develop a capability to reprocess GOES AMVs using its state-of-the-art AMV algorithms. These opportunities may come in the form of leveraging any ongoing efforts within NOAA/NESDIS that particularly involve the retrieval of historical GOES data from NOAA's National Climatic Data Center (NCDC) and their placement onto large disk arrays. Currently, NOAA/NESDIS is also interfacing with the Environmental Modeling Center (EMC) of the National Centers for Environmental Prediction (NCEP) which is in the planning stages for its next large reanalysis effort which is scheduled to begin in CY 2008. NOAA/NESDIS will work to capitalize on possible funding opportunities this effort may bring as a means to reprocess GOES AMVs and provide them to the NCEP/EMC reanalysis effort and any future ECMWF reanalysis efforts.

3. References

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