


# Programme Decision

## for the EUMETNET Optional Programme

### GNSS Water Vapour (E-GVAP II)

DOCUMENT VERSION CONTROL TABLE				
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Final V1.0	20/12/09	This final version has been approved and adopted by the Assembly of Members following the integration of changes and comments received from Members during the 2nd Assembly Meeting and the subsequent 30 day period allowed for further comments	V1.0 authorised for release to all Members, potential Participating Members and to the EUMETNET Portal	
Final V1.1	16/11/10	This final version has been updated to take into account the new governance structure approved at the 4 <sup>th</sup> Assembly of Members		

		meeting.		
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# Programme Decision for the EUMETNET Optional Programme GNSS Water Vapour (E-GVAP II)

## Preamble

The EUMETNET Economic Interest Grouping (EIG) has been incorporated to, inter alia, establish programmes as required by the EIG Assembly of Members. The Assembly of Members may approve the transfer of Programmes from the old EUMETNET Conference to the EUMETNET EIG. Any such transfer of responsibility to the EIG will be the subject matter of a Programme Decision of the EUMETNET EIG Assembly of Members.

On 17 October 2009, the Council of the EUMETNET Conference decided to continue the GNSS Water Vapour Programme, hereafter called E-GVAP for a further 4 years and 9 months (the Programme is defined by the following documents: EMN/C34/Doc6 and EMN/Ex-Committee/XC04.09).

This Programme Decision relates to the transfer of such a Programme, approved by the EUMETNET EIG Assembly of Members and supersedes all previous Programme Decisions relating to this programme under the old EUMETNET Conference. This new updated Programme Decision is consistent with the Agreement for the Establishment of the EUMETNET EIG, dated 17<sup>th</sup> Sep 2009 and incorporates the changes made by the EUMETNET Assembly during 2010 to the governance of EIG EUMETNET and the delivery of its Programmes.

## 1. Aim of the Programme Decision

The E-GVAP Programme is transferred to the EUMETNET EIG as an Optional Programme (as defined in the EUMETNET EIG Agreement Article 3.1) by this Programme Decision which specifies the objectives, deliverables, budget, resource requirements and major milestones of the Programme. The purpose of this Programme Decision is to establish the terms and conditions by which the objectives and tasks of the Programme will be delivered.

## 2. Programme participants

The Programme participants are the Participating Members from the EUMETNET EIG and 3<sup>rd</sup> party participants of the Programme approved by the EUMETNET EIG Assembly of Members. 3<sup>rd</sup> party participants may be National Meteorological (and Hydrological) Services (NM(H)Ss) which are not Members of the EUMETNET EIG, the European Union (EU) or European Commission (EC), national, international or intergovernmental organizations, academic institutions or private sector companies. In each case, a 3<sup>rd</sup> party participant can only join the Programme in accordance with Article 13 of the EIG Agreement. 3<sup>rd</sup> party participants will be required to sign a cooperating agreement.

The Programme participants in the Programme at the time the Programme Decision was made (according to EUMETNET EIG Agreement, Articles 3.5 and 3.6), are listed in Annex1. Annex 1 will be updated as the list of Programme participants change; changes to Annex 1 do not constitute a change to the Programme Decision but will be agreed by participants during a meeting of the Assembly and included in the Minutes of the Assembly.

## 3. Programme objectives

1. Ensure the system built up in E-GVAP-I is maintained and continue to run, to make available for assimilation and now-casting data from the sites currently available in E-GVAP-I beyond March 2009.
2. Continue the established, fruitful close collaboration with the geodetic community. Thereby increase the number of sites, in particular in regions with poor coverage and data, and increase the homogeneity and quality of the NRT ZTDs.

3. Further and improve the construction of IWV maps and animations for use in now-casting.
4. Ensure that data server and data monitoring facilities have backups in case of failure, minimising the risk of a complete lack of ZTD/IWV data.
5. In collaboration with the geodetic community, and possibly EUMETSAT, attempt to improve quality and security of access to so-called “satellite orbit and clock estimates”, which are used in the data processing by the processing centres.

#### **4. Duration and phases**

Noting that the current Programme phase started on 1<sup>st</sup> April 2009, the Programme will continue until the end of 2013.

There will be a midterm review of the Programme, to consider whether the programme is at that stage mature enough to move under the EUCOS umbrella. This review is to be ready at the 2 year 9 month term. Based on this report a decision to continue or discontinue as an independent programme will be made.

#### **5. Major milestones**

##### **April 2009 to Dec 2009**

- Setup of liaison group and the two expert groups
- Formalisation of contacts to EUCOS, including how to make in common a route map for implementation of E-GVAP into EUCOS.
- Establish contacts to people responsible for the development of the WIS and VGISC.
- Extension of networks in Spain and Portugal.
- First version of active quality control software capable of automatically flagging ACs or delay data which the monitoring has found to be incorrect.
- Reports from expert, liaison and E-GVAP teams.
- Establish contacts with non-European Suppliers and Users with the objective of mutual data exchange globally.

##### **Year 2010**

- Establishment of an agreed set of User Requirements appropriate to a fully operational environment, to be updated during E-GVAP-II as appropriate to changing external drivers and user needs.
- Definition of common, minimum requirements to processing as regards problems with access to data from individual sites, and to satellite orbit and clock estimates.
- Arrangement with facility(ies) which can process GNSS data which might become available in Europe, but are not processed already by current GNSS processing centres.
- Reports from expert, liaison and E-GVAP teams.

##### **Year 2011**

- Workshop on the production and use of gb GNSS delay data. In connection with expert team meeting or an international conference.
- Reports from expert, liaison and E-GVAP teams.
- Common E-GVAP and EUCOS report on the prospects of immediate implementation into EUCOS.

##### **Year 2012**

- A review/discussion of the future route for European ground based GNSS observations for meteorology
- Draft proposal for the future of E-GVAP.
- Reports from expert, liaison and E-GVAP teams.
- Nominal start of operations under EUCOS

##### **Year 2013**

- Review of processing, utilisation, and impact of ground based GNSS data at European meteorological services.
- Workshop on the production and use of gb GNSS delay data. In connection with expert team meeting or with international conference.
- Reports from expert, liaison and E-GVAP teams.
- Final report
- Formal hand-over of operations to EUCOS

## 6. Deliverables

- Set up methods for monitoring that enable near real time detection and subsequent withhold of certain types of incorrect NRT ZTD data.
- Formalise and improve the use of the “supersites” introduced in E-GVAP for monitoring of system stability and errors.
- Collaborate closely with the EUCOS team, both regarding future implementation of E-GVAP into EUCOS, and regarding construction of the planned “EUCOS portal” for access to EUMETNET programme observational data.
- Convince EUMETNET members to use E-GVAP data and to become members of E-GVAP.
- Follow the development of the WIS and VGISC. Prepare for the E-GVAP data monitoring and distribution system to become a DCPC relative to the WIS.
- To co-ordinate the meteorological exploitation of national sources of GNSS data by cost-effective agreements and provide meteorological support for expansion of GNSS observing networks.
- To report on the progress of water vapour /zenith total delay data assimilation research and promote the use of GNSS water vapour measurements in operational meteorology by the provision of suitable teaching material and documentation.
- Follow and report on the developments in the field of assimilation of slants and gradient. Enable and encourage production and distribution of gradients and slant delays via E-GVAP facilities.
- To explore the possibilities for long-term central archiving of both raw (RINEX) and processed (ZTD) data for off-line research and potential future re-processing for climate applications.

## 7. Programme Coordinating Member and Programme Management

By agreeing this Programme Decision the EUMETNET EIG Assembly of Members delegates responsibility to the Danish Meteorological Institute (DMI) as the Programme Coordinating Member in accordance with Articles 3.7, 3.8 and 7.6a of the EUMETNET EIG Agreement.

### 7.1 Programme Management Tasks

The Programme Management tasks support the delivery of the above objectives, deliverables and milestones of the Programme. The Coordinating Member will execute the tasks of managing the Programme within the limit of the resources as specified by this Programme Decision in a timely and proper manner with all due care and attention and in accordance with the EUMETNET EIG Agreement, Working Arrangements and Financial Rules. The responsibilities of the Coordinating Member concern in particular:

- Set up working and reporting procedures.
- Monitor the progress, initiate corrective actions as necessary.
- Preparation of meetings, administration for the meetings, minutes, etc.
- Function of a web site for publicity and project documents.
- Management of the project budget.
- To supervise liaison with the GNSS sensing community.
- To liaise with bodies such as WMO and the user community.
- Extract radiosonde data for EUREF-EUMETNET data exchange.
- Produce DMI-HIRLAM NWP ZTD estimates for use in the E-GVAP-II monitoring of GNSS ZTD data quality.
- Assist KNMI in development of quality controlling algorithms.

- Delivery of the final report.

The Coordinating Member is accountable to the EUMETNET EIG Assembly of Members for the delivery of the Programme and its Programme Manager reports on a routine basis to the Science and Technology Advisory Committee (STAC).. It is the responsibility of the Coordinating Member in consultation with STAC to identify decisions that have to be referred to the Policy and Finance Advisory Committee (PFAC) or to the Assembly of Members. It shall in particular be the case for decisions involving general policy and funding. Consultation with the EUMETNET EIG Secretariat may help confirm whether an issue requires the attention of the STAC, PFAC of the Assembly and also to schedule the issue(s) into the relevant meeting agenda.

As a general rule, the Programme Managers will be represented at STAC by the Capability Programme Manager (CPM) of their Capability Area. However, if specific issues require the presence of the Programme Manager, he/she will attend the STAC meeting in addition to the CPM.

## 7.2 Programme resources

The Coordinating Member has appointed Dr Henrik Vedel as the E-GVAP Programme Manager for the term of this Programme Decision.

The programme manager together with Dr. Siebren de Haan, KNMI and Jonathan Jones, UKMO, constitute the E-GVAP-II team.

The quality control and part of the monitoring will be performed at KNMI, setup and run by Dr Siebren de Haan (KNMI).

UKMO will be responsible for data hub, IWV maps, part of the monitoring and BUFR encoding and this will be managed by Jonathan Jones. Dave Offiler will be conducting the monitoring work and control BUFR encoding. In the longer run BUFR encoding and injection to the GTS will become decentralised.

The Coordinating Member's Programme Manager remains employed or contracted by the Coordinating Member.

The Programme Manager will be given the necessary authorities by the Coordinating Member to commit expenditure and resources on behalf of the EUMETNET EIG in accordance with this Programme Decision and within the financial limits of the annual budget and 3 year plan. The Coordinating Member and its Programme Management Team will abide by the financial rules of EUMETNET EIG and the Coordinating Member's financial and management controls.

In the event that the Coordinating Member's Programme Manager is unable to carry out his duties for a period of one month or more, the Coordinating Member will take appropriate interim measures to ensure that the necessary programme management tasks are carried out efficiently and to schedule and advise the EUMETNET EIG Secretariat of the situation. Should the situation be expected to continue for more than 3-months, the Secretariat will inform the EUMETNET EIG Assembly of Members who may request that the Coordinating Member proposes a new Programme Manager or make a decision concerning corrective or preventive action according to the EUMETNET EIG Agreement, Article 6.2l.

In the event that one or more Programme participants fail to make their financial contributions for the programme the Coordinating Member will not be expected to commit financial resources beyond those received. In accordance with the EUMETNET EIG Financial Rules, the Coordinating Member may (if the Programme Manager identifies a cash flow situation that may adversely affect the delivery of the Programme objective)

make a request to the Executive Director for a loan from the EUMETNET EIG to assist in delivery of the Programme.

### **7.3 Liabilities as regards employees and contractors**

The Coordinating Member will:

- Assume full responsibility for all matters concerning the employment of staff and contractors required for delivery of this Programme Decision;
- Ensure that, at termination of this contract, the benefit and burden of the contracts of employment of all staff involved in the Programme do not transfer, should a different Member be appointed as successor Coordinating Member;
- Hold any successor Coordinating Member indemnified against any liabilities in connection with the Staff.

### **7.4 Liability**

In the running of the Programme, the Coordinating Member will take all appropriate measures to ensure that no liability is incurred by the EUMETNET EIG Members as a consequence of its actions or of those of Staff or Contractors. The Coordinating Member will not be responsible for claims arising from the actions of the EUMETNET EIG Assembly of Members or individual EUMETNET EIG Members.

### **7.5 Transfer of assets**

If the EUMETNET EIG Assembly of Members decides to continue this Programme beyond the period defined in this Programme Decision, or decides actions based on the result of the mid-term review as described in Section 4 above, and the Coordinating Member is due to change, the present Coordinating Member will ensure the availability of the Programme team to allow the transfer of assets and competence to the successor. A proposal for the organisation of this transition phase should be made available at least nine months before the handover.

### **7.6 Memoranda of Cooperation**

The Coordinating Member may make a request (by notifying the Secretariat) to the Assembly of Members for a Memorandum of Cooperation to be established between the EIG and a non-participating 3<sup>rd</sup> party for exchange of knowledge and information and general collaboration provided that such an arrangement is deemed consistent with the Programme's aims and compliant with Article 13 of the EIG Agreement, i.e. that it will bring benefit to all EIG Members. Usually such a request will be scrutinised by the PFAC prior to consideration by the Assembly.

## **8. Programme Committees**

### **E-GVAP has Expert Teams on:**

1. Operational liaison groups for gb GNSS ZTD/IWV observations managing the interaction between meteorologists and the wider GNSS sensing community. Data processing and standards dealing with quality issues associated with GNSS data processing. This helps to improve E-GVAP products.
2. Promoting use of the observations, including liaison with data assimilation and observing system experiments, and with other water vapour network users. This helps E-GVAP members to start utilise or utilise better the E-GVAP data.

The Programme Manager reports to the Science and Technology Advisory Committee (STAC) as per the new governance structure approved at the 4<sup>th</sup> Assembly of Members.

If necessary the EUMETNET EIG Assembly of Members may also modify the governance structure according to EUMETNET EIG Agreement, Article 6.3 and 6.4.

## **9. Commitments of the Participating Members**



The Participating Members commit to carrying out their responsibilities in assisting the Coordinating Member in the delivery of the Programme.

The Participating Members will make their financial contributions for this programme as part of their total yearly financial commitment to EUMETNET EIG in accordance with EUMETNET EIG Agreement, Article 9. The Coordinating Member, as a Participating Member, bears its share of the agreed contribution (as defined in section 12 of this Programme Decision) under the same rules as the other Participating Members.

#### **10. Commitments of the 3<sup>rd</sup> party participants**

The commitments of the 3<sup>rd</sup> party participants are documented in separate contract(s) between the EUMETNET EIG and the 3<sup>rd</sup> party(ies).

#### **11. Reporting**

The Programme Manager shall send a quarterly report to the EUMETNET EIG Secretariat and the CPM on the advance of the Programme every three months, and an annual report every year.

The quarterly reports should be drafted according to the agreed EUMETNET EIG template and should include news relating to the Programme's status and main activities, particular developments, financial report, eventual delays and difficulties, possible requests to the EUMETNET EIG Assembly of Members. The quarterly reports should be sent to the EUMETNET EIG Secretariat before: 15th April, 15th July and 15th October. The fourth quarterly report should be part of the annual report.

The quarterly reports will form the basis of reporting to the STAC.

The Programme Manager may also produce monthly highlight reports instead of the quarterly reports. However these reports should have the same format as the quarterly report including the financial status of the programme.

The annual report should be drafted according to the agreed EUMETNET EIG template and explain in detail the activities undertaken during the past year, specify which parts of the given objectives were reached, which ones were not and why and give a schedule for the activities expected to be undertaken in the coming year and include a full financial report. This report should be sent to the EUMETNET EIG Secretariat each year before the 28th February.

#### **12. Programme Budget**

The annual EIG EUMETNET budget for the following year will be agreed by the EUMETNET EIG Assembly of Members at its autumn meeting. The Programme Manager is responsible for working with the Secretariat to ensure that a Programme Budget proposal is made to the Assembly of Members in line with the EUMETNET EIG budget and business planning cycle in the Financial Rules. The budget proposal will be scrutinized by the PFAC prior to submission to the Assembly.

This EIG EUMETNET budget will include for each Programme all expected revenue and planned expenditure for that year, and therefore defines the full Programme Budget.

At the same time as agreeing the following year's budget, the EIG EUMETNET Assembly of Members will define the following year's financial delegations including those for the Programme Managers. These delegations and the associated Programme Budget will be communicated to the Programme Manager by the Executive Director following the Assembly meeting and before the end of December each year.

Until such time as the Assembly agrees a 3 year financial plan and the associated financial commitment for each Programme, for future years the total annual maximum Programme Contribution of 119k€/year, agreed by the Council of the EUMETNET Conference, remains valid for planning purposes.



Should the Assembly decide to continue the Programme beyond the date shown in Section 4 above, then the associated total maximum Programme Contribution will be defined in a new Programme Decision.

The Contributions will be calculated according to the EUMETNET EIG Agreement Article 9.2 and the Programme budget will be agreed every year according to EUMETNET EIG Financial Rules. The EUMETNET EIG Secretariat gathers the funds from the EIG Members and transfers the necessary funds to the Coordinating Member according to the EUMETNET EIG Financial Rules.

For expenditure commitments likely to span more than one financial year, commitments can only be made in line with the Financial Rules of the EUMETNET EIG.

### **13. New participants**

New participants may join the Programme in accordance with the EUMETNET EIG Agreement, Articles 3.6 and 13.

### **14. Disputes**

Any disputes will be handled according to the EUMETNET EIG Agreement Article 16.

### **15. Intellectual Property Rights, Assets, and ownership**

The EUMETNET EIG rules concerning acquired and pre-existing knowledge of Participating Members of Programmes and concerning tangible assets are described in the EUMETNET EIG Agreement Article 12. For 3<sup>rd</sup> party participants, the IPR issues will be covered in the relevant contractual terms which will be compatible with the terms of the EUMETNET EIG Agreement.

It is the responsibility of the Participating Members to ensure (in accordance with the EIG Agreement Article 12.2b) that should the Programme produce intellectual property that may be capable of industrial or commercial applications (by Members) outside the scope of Article 2 of the EIG Agreement, the terms for exploitation by Member should be appropriately documented in this Programme Decision. Participating Members should propose such amendments to the Assembly of Members for approval.

Physical assets procured or developed by the Programme will remain the responsibility of the Coordinating Member until such time as the Programme transfers to a new Coordinating Member or the Programme ceases. In the event of a transfer to a new Coordinating Member the current Coordinating Member will negotiate and agree the transfer of responsibility with the new Coordinating Member (see also 7.5 above).

When the Programme is due to cease, the Coordinating Member will agree with the Secretariat appropriate disposal of such assets.

### **16. Confidentiality**

Each of the participants undertake to the others that while this Programme Decision is in force and at any time thereafter that confidential information shall be kept secret and confidential and not disclosed (save as may be necessary for the purpose of this Programme Decision) to any third party. For the avoidance of doubt, confidential information shall include intellectual property, business information and information relating to this Programme Decision.

Those participants subject to the legal principle of public access to official records and files may in a court decision be ordered to issue information and/or documentation. Such a disclosure will not be construed as contrary to this agreement.

### **17. Withdrawal, Departure and exclusion of Programme Participants**

In the event that a Participating Member wishes to withdraw from the Programme the Participating Member shall make its intentions known to all other Participating Members at the next meeting of the Assembly including their reasons for leaving. In accordance with the Article 7.8.c during the Assembly meeting, the Participating Members of the relevant Programme(s) will make a vote on the request made. If the request is approved the Participating Members will decide on the terms for withdrawal from the Programme.

Should a Participating Member depart from the EUMETNET EIG or be excluded from it then Articles 7.4.g, 14 and 15 shall apply.

For 3<sup>rd</sup> party participants, this matter will be covered in the relevant contractual terms which will be compatible with the terms of the EUMETNET EIG Agreement.

#### **18. Audit and disclosure**

At any time the Assembly of Members or any individual EIG Member may review the Programme accounts and may also request an external audit to be performed at its own expense.

#### **19. Modifications to the Programme Decision**

The EUMETNET EIG Assembly of Members can modify the existing Programme Decision according to the EUMETNET EIG Agreement Articles 6.2k and 7. Normally such changes will be a matter for the Participating Members only.

#### **20. Termination of the Programme Decision**

This Programme Decision will cease to be effective at the end of the period defined in Section 4 above. The EUMETNET EIG Assembly of Members may decide on the earlier termination of the Programme according to the EUMETNET EIG Agreement Articles 7.3j and 19.3.

In the event of significant programme delays, failure to deliver, or cost escalation, these matters will be raised to the Assembly of Members where the Participating Members will agree on changes to the Programme Decision but only during a meeting of the EUMETNET EIG Assembly of Members (in accordance with the EIG Agreement). They may choose to modify the Programme Decision or terminate the Programme.

The Coordinating Member may seek to return its delegation of responsibility for the Programme by making a written request to the EUMETNET EIG Assembly of Members with a minimum notice period of six months prior to its intended withdrawal date.

#### **21. Precedence and reference**

For all matters not specifically covered by the present Programme Decision, the rules of the EUMETNET EIG Agreement, Working Arrangements and Financial rules shall apply.

## ANNEX1

### Programme participants

RMI, Belgium
DHMZ, Croatia
DMI, Denmark
FMI, Finland
Météo-France, France
OMSZ, Hungary
IMO, Iceland
Met Éireann, Ireland
KNMI, Netherlands
Met.no, Norway
RHMSS, Serbia
AEMet, Spain
SMHI, Sweden
MeteoSwiss, Switzerland
UKMO, United Kingdom