



Received: 5 April 2021

**Document 7D/58-E**  
**6 April 2021**  
**English only**

Subject: Annex 1 of document 7D/28  
Draft new question ITU-R XXX/7 on VGOS

## **Finland/ France/ Germany (Federal Republic of)/ Norway/ Switzerland (Confederation of)/ South Africa (Republic of)/ Committee on Radio Astronomy Frequencies**

### **DRAFT NEW QUESTION ITU-R XXX/7**

This contribution proposes amendments to the draft new question contained in Annex 1 of the Chairman's Report (Document [7D/28](#)).

The Annex to this document is based on the multi-country proposal (Input Document: [7D/22](#)), taking into account the discussion and amendments made at the most recent WP 7D meeting and the results achieved since then.

## ANNEX

### Radiocommunication Study Groups



Source: Document 7D/TEMP/10

**Annex 1 to  
Document 7D/28-E  
18 September 2020  
English only**

### **Annex 1 to Working Party 7D Chairman's Report**

DRAFT NEW QUESTION ITU-R XXX/7

### **VLBI Global Observing System (VGOS)**

(2020)

The ITU Radiocommunication Assembly,

*considering*

- a)* that the International VLBI Service for Geodesy and Astrometry (IVS) as a non-profit multi-national cooperative effort provides on a daily basis Very Long Baseline Interferometry (VLBI) measurements of Universal Time UT1 needed for the transformations of the ephemerides of any kind of space activities, in particular those that rely on highest position accuracy;
- b)* that according to the Resolution B2 of the International Astronomical Union (IAU) General Assembly 1997, the fundamental reference system for astronomical applications is the International Celestial Reference System (ICRS) and the practical realisation of the ICRS in the radio regime is the International Celestial Reference Frame (ICRF), a space-fixed frame based on high accuracy radio positions of extragalactic sources measured by VLBI and provided by the International Earth Rotation and Reference Systems Service (IERS) using observational data from the IVS;
- c)* that these IVS observations are the only means for tying the international terrestrial reference frame (ITRF) to the ICRF by the full set of Earth orientation parameters which includes UT1 as defined in Recommendation ITU-R TF.460-6;
- d)* that the Resolution 69/266 of the United Nations calls member states to contribute to “A global geodetic reference frame for sustainable development”, to be realized as the Global Geodetic Reference Frame (GGRF) including precise coordinates of radio telescopes maintained within the IVS;
- e)* that the Global Geodetic Observing System (GGOS) Project of the International Association of Geodesy (IAG), which is an associated member of the United Nations Office for

Outer Space Affairs, including IVS operations, is set up to provide the 1mm position accuracy needed for Global Change studies in general and for monitoring global sea level rise in particular;

*f)* that the global infrastructure of the IVS is composed of radio telescope stations of the VLBI Global Observing System (VGOS) which is essential for UT1 determinations for satellite operations, for astronomical and terrestrial reference frame construction, for the UN GGRF efforts, and for monitoring the effects of Global Change;

*noting*

*a)* that the GGRF is a generic term describing the framework which allows users to precisely express locations on the Earth, as well as to quantify changes of the Earth in space time; [;]

*b)* that VLBI is a technique developed and practiced in the radio astronomy service,

*c)* that geodetic VLBI is of fundamental importance to establish the GGRF

*decides* that the following Questions should be studied

[1 What are the technical and operational characteristics of geodetic VLBI?

2 How does geodetic VLBI use radio spectrum to achieve the accuracy needed to fulfil its mission?

3 Which services rely on and utilize the GGRF?

4 What is the economic impact of geodetic VLBI? ]

*further suggests*

1 that the results of the above studies should be included in one or more ITU-R Recommendations and/or Reports as appropriate;

2 that the above studies should be completed by the year 2023.

Category: [S2]

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