

# **Technical processing of GEMS observations at ECMWF**

**Martin Suttie**

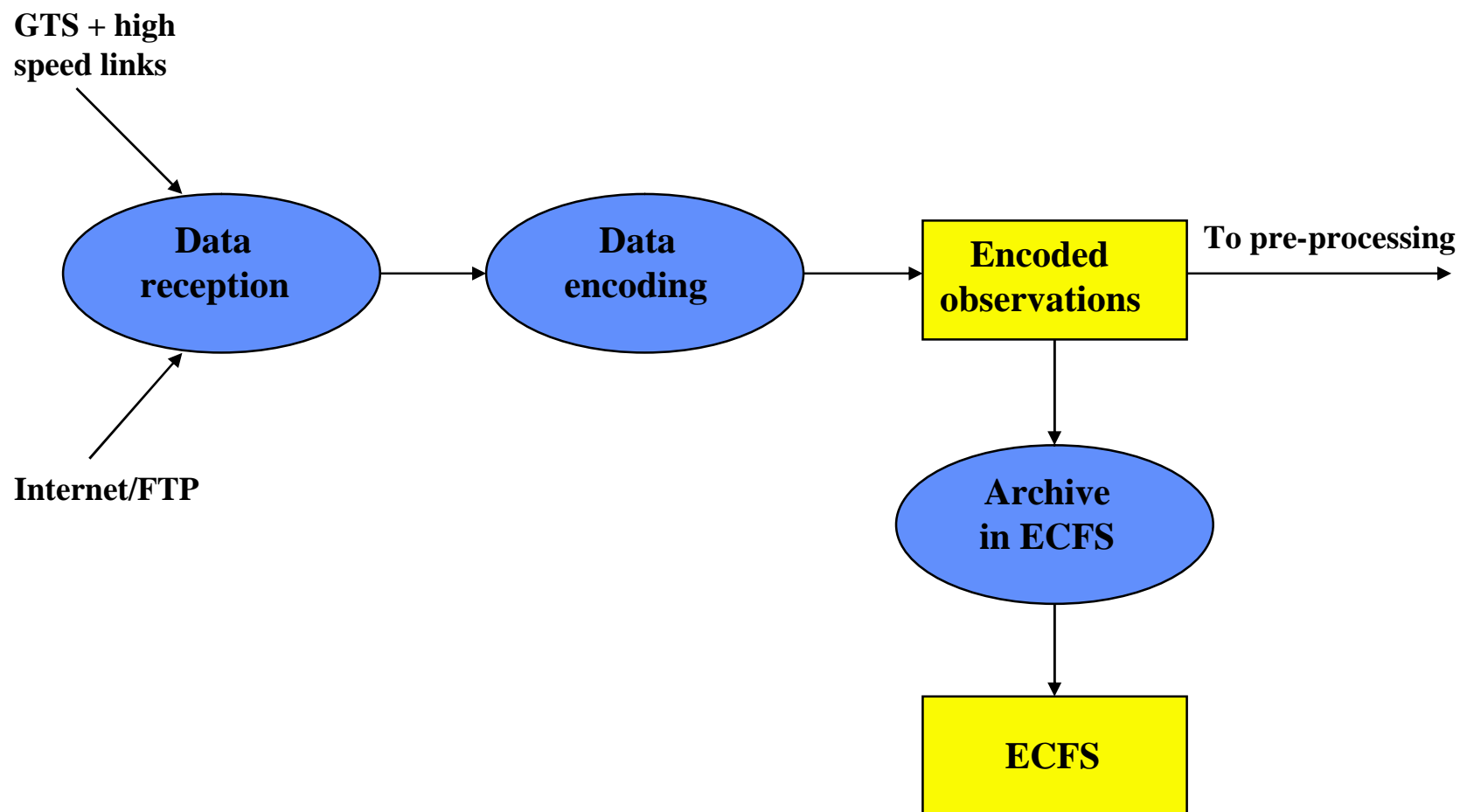
**Meteorological Applications Section**

**Operations Department**

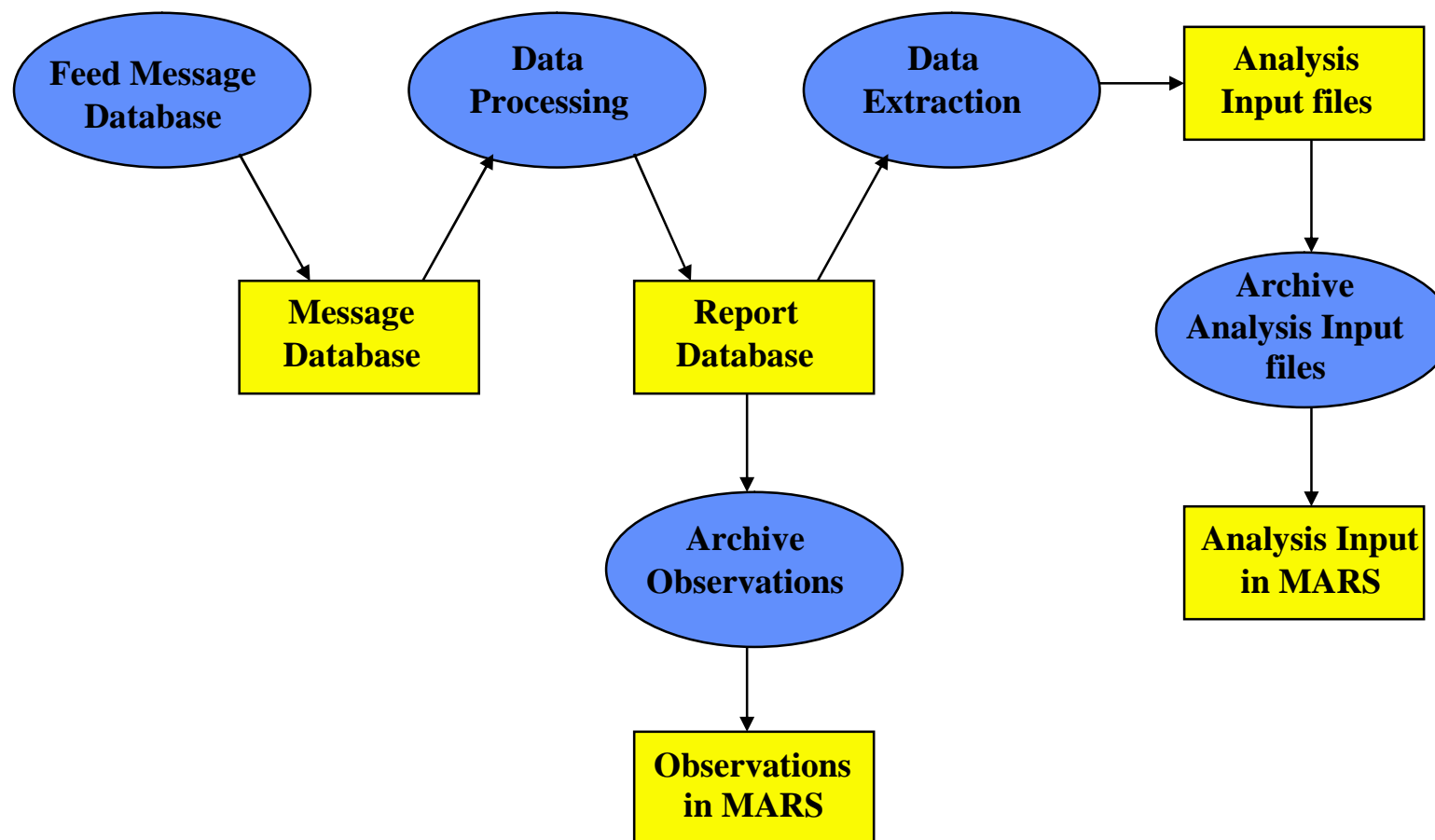
# Introduction

- **Data acquisition and pre-processing at ECMWF**
  - Acquiring and encoding data
  - Pre-processing in preparation for analyses
- **Observation processing within GEMS PRO**
  - BUFR issues
  - Encoding software
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- **Air quality observations for RAQ**
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# Data acquisition at ECMWF



# Observation pre-processing at ECMWF



# Observations in MARS

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## January

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# Observation processing within GEMS PRO – BUFR encoding

## ● BUFR definitions

- Proposals to WMO
  - Have been reviewed by Expert Team
  - Majority accepted (rejection of aerosol types – To Be Clarified)
  - Awaiting official report (should be soon)
- Constructed local BUFR tables including new GEMS parameters (as in proposals)
- Using these new BUFR tables for first encoding of GEMS observations

## ● Encoding software

- Under construction; reads raw data format and encodes into BUFR
- initially for KNMI SCIAMACHY NO<sub>2</sub> and MODIS Aerosol

## Observation processing within GEMS PRO – data acquisition

- MODIS Aerosol (Terra & Aqua) for 2003  
([ec:/oparch/gems/modisaerosol/aqua\[terra\]/YYYYMM/DD/\\*.raw.gz](ec:/oparch/gems/modisaerosol/aqua[terra]/YYYYMM/DD/*.raw.gz))
- KNMI SCIAMACHY NO<sub>2</sub> for 2003 and 2004  
([ec:/oparch/gems/sciamachy/knmi\\_no2/YYYYMM/DD/no2track\\*.raw.gz](ec:/oparch/gems/sciamachy/knmi_no2/YYYYMM/DD/no2track*.raw.gz))
- MOPITT CO for 2003 and 2004  
([ec:/oparch/gems/mopitt\\_co/YYYYMM/DD/\\*.raw.gz](ec:/oparch/gems/mopitt_co/YYYYMM/DD/*.raw.gz))
- AURA TES CH<sub>4</sub> and CO for July 2005  
([ec:/oparch/gems/tes\\_ch4\[co\]/200507/DD/TES-Aura\\_L2-CH4\[CO\]\\*.raw.gz](ec:/oparch/gems/tes_ch4[co]/200507/DD/TES-Aura_L2-CH4[CO]*.raw.gz))
- KNMI GOME HCHO for December 2001  
([ec:/oparch/gems/gome/knmi\\_hcho/200112/DD/ch2otrack\\*.raw.gz](ec:/oparch/gems/gome/knmi_hcho/200112/DD/ch2otrack*.raw.gz))

# Air quality observations for RAQ

- **Ground-based observations**

- ARPA-SIM (along with others in RAQ) to provide document on observational data description
- ECMWF to review document to see how data can be represented in BUFR
- ECMWF to guide and support BUFR encoding of observations

- **MOZAIC**

- Received data description and sample data
- Looking at data with a view to producing a BUFR template
- No place (yet) in BUFR for NO<sub>x</sub> and NO<sub>y</sub>



# GEMS archive at ECMWF

