FROG-MURAN

GAMIC Data Systems for Doppler Weather Radars

Make the best out of your sensors

TECHNOLOGY

FROG-MURAN is a data processing suite for stand-alone Doppler weather radars and for multi-radar networks developed by GAMIC for X-, C- and S-Band systems.

FROG-MURAN is compatible with all types of Doppler Weather Radars using Magnetron, Klystron and Solid State transmitters, including Dual Polarization and Pulse Compression option.

FEATURES

FROG-MURAN is a complete software suite featuring the following applications :

- **FROG-RTNG** Real Time Radar Processors.
- **PROGEN** Comprehensive Radar Product Algorithms for Meteorology, Hydrology, ATC and Governmental Users.
- **COLIBRI II** Product visualization.
- **FROG-3D** Interactive 3D Data Presentation.
- **MURAN** Data Dissemenation and Wide Area Network Message Switching.
- **MOSAIC** Radar Compositing for Radar Networks.
- **Internet Server** for Data Access via Browser & PC.
- **Now Casting** STP, Radar Data Base.
- **WWARN** Weather Decision Aid Systems.
- **TOOLKIT** Scientific Weather Sensor Processing.
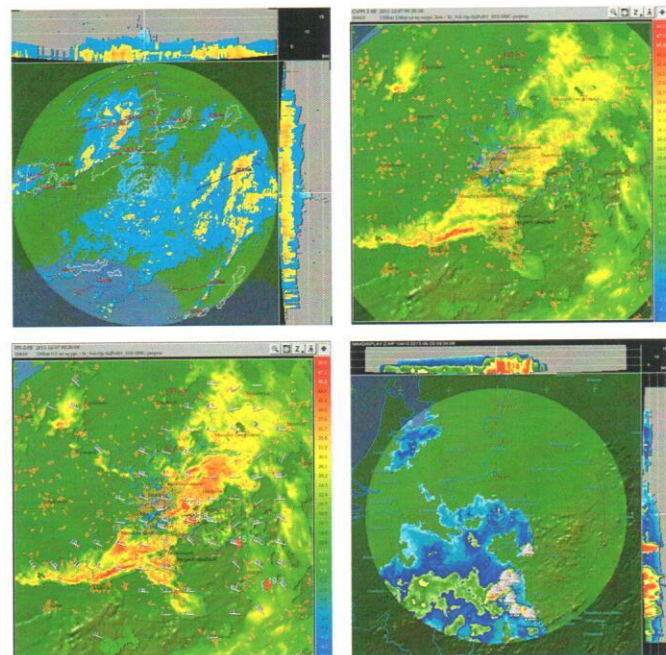- **ASTERIX** ATC Console Weather Data Generator.

REFERENCES

FROG-MURAN has been successfully implemented over 250 times worldwide and is being operated by scientifically recognized users such as National Weather Services, International Airports, research institutions and armed forces.

Please consult us for a detailed reference description.

ALGORITHMS

FROG-MURAN algorithms fully developed by GAMIC are used for :
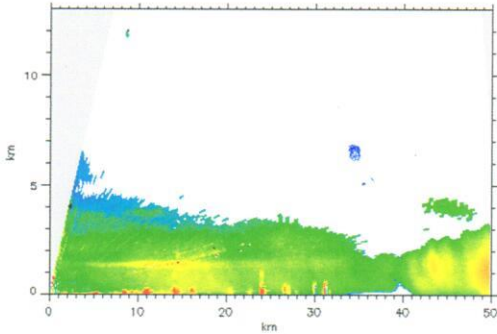
- Data quality improvement (real-time & post-processing)
- Quantitative Echo Analysis
- Wind Analysis Products
- Storm Analysis Products
- Hydrological Analysis
- Wind and Shear Detection
- Warning of Severe Weather
- Detection of Meteorological Phenomena
- Tracking and Forecasting
- Composition, Communication and Data Fusion
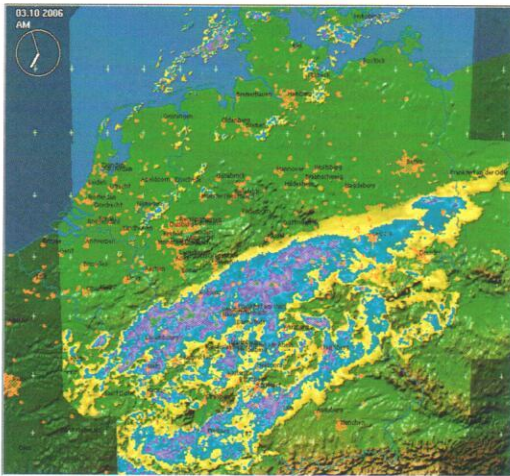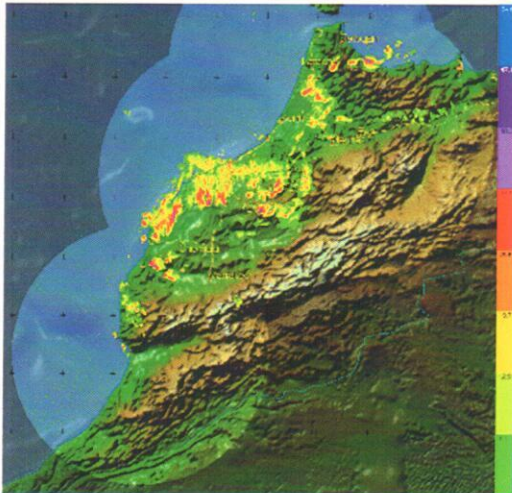- Projections and I/O formatting
- And much more...

FROG-MURAN

FROG-RNT : Real-time Data Display

MOSAIC : German Radar Network (18 Radars)

MOSAIC : Radar Network Morocco (6 Radars)

gamic

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STANDARD PRODUCTS Included in all FROG-MURAN versions	Description
PPI (Z, V, W, R)	
RHI (Z, V, W, R)	
CAPPI (Z, V, W, R)	
VSECT (Z, V, W, R)	
MAXDISPLAY (Z, V, W, R)	Maximum Column CAPPI
DPOL MOMENT EXTENSIONS	
ZDR, LDR, KDP, PHIDP, RHOHV	Basic Moments
RCLASS	Rainfall classification
OPTIONAL PRODUCTS	
PRE-PROCESSING & CORRECTION	
BBLC	Beam blockage correction
BBC	Bright band detection and correction
PREC	Precipitation attenuation correction
VPR	Vertical profile of rain correction
OCC	Beam occultation correction
ECHO HEIGHT ANALYSIS	
ETOP	Echo Top
EBASE	Echo Base
LMAX	Layer Maximum
CMAX	Column Maximum
HMAX	Maximum Height of Maxima
ETH	Echo Thickness
WIND ANALYSIS	
VAD	Velocity Azimuth Display
VVP	Volume Velocity Processing
UWT	Uniform Wind Technique
HWIND	Horizontal Wind
STORM ANALYSIS	
CMM	Combined Moment Display
SRV	Storm Relative Velocity
SMV	Spectrum Mean Velocity
LMR	Layer Mean Reflectivity
SWAD	Severe Weather Analysis
HYDROLOGICAL ANALYSIS	
SRI	Surface Rainfall Intensity
SHR	Surface hourly rainfall
VIL	Vertically Integrated Liquid
PAC	Precipitation Accumulation
PAL	Long time accumulation
RIH	Rainfall Intensity Histogram
PRT	Point Rainfall Total Plot & Table
RSA	River Subcatchment Accumulation
RGAUGE	Radar gauge
VPR	Vertical profile correction
WIND & SHEAR	
RDS	Shear in Radial Direction, Radial Shear
AZS	Shear in Azimuth Direction, Azimuth Shear
ELS	Shear in Elevation Direction, Elevation Shear
RAS	Shear Combined Range and AZ direction, 2D Az shear
RES	Shear Combined Range and EL direction, 2D El shear
3DS	Shear Combined Range, AZ and EL direction, 3D Shear
HZS	Shear in Horizontal Layer Direction, Horizontal Shear
VCS	Shear in Vertical Layer Direction, Vertical Shear
SHEAR	All Shear-Package
LTB	Shear between Two Layers, Layer Turbulence
LLSHEAR (xref. HZS)	Low level wind Shear
WARNING OF SEVERE WEATHER & PHENOMENA DETECTION	
VIR	Vertically integrated Reflectivity
WARN	Automatic severe weather warning
SSANA, SSA	Storm Structure Analysis
MESO	Meso Cyclone Detection
CDVER, VERG	Convergence/divergence Product
SWI	Severe Weather Indicator
DSD	Dust Storm Detection
HAIL	Hail Detection
MBURST	Microburst Detection
GUST	Gust front detection
FCOM-WARN	Severe Weather Feature Combination
IDW	Ice Detection and Warning
TRACKING & FORCASTING	
ITRACK	Interactive Strom tracking
STP, GSF	Automatic Storm tracking
RSTP	Rain Tracking
CSTP	Centroid Tracking
COMPOSITING, COMMUNICATION & DATA FUSION	
MOSAIC	Radar Network Composite (Proprietary format)
MOSAIC - WS	Radar Network Composite (Other formats – UF)
SAT (Metosat, NOAA, EOS, MODIS, ...)	Satellite Image Data Processing
TOOLKIT	Processing and display of multiple BISTATIC receiver data
DVL	Dynamic vector overlay DVL e.g. for flight data display
DLR	Dynamic raster underlay DRL, for SAT display
LIGHT	Lightning Data Dynamic Overlay
GAUGE	Rain Gauge Data Integration
AWOS	AWOS Integration
LLWAS	LLWAS Integration
NWP	NWP Interface, BUFRE
IIDG	Web / Internet Data Distribution System
FROG-3DVIEW	3D image display
WSP, WDP	ASTERIX CAT008/009 Front-End Processing
GEOGRAPHICAL PROJECTION OF PRODUCTS	
Azimuth-Equidistant (default)	
Mercator	
Polar-Stereographic with selectable references	
Polar-Stereographic UTM	