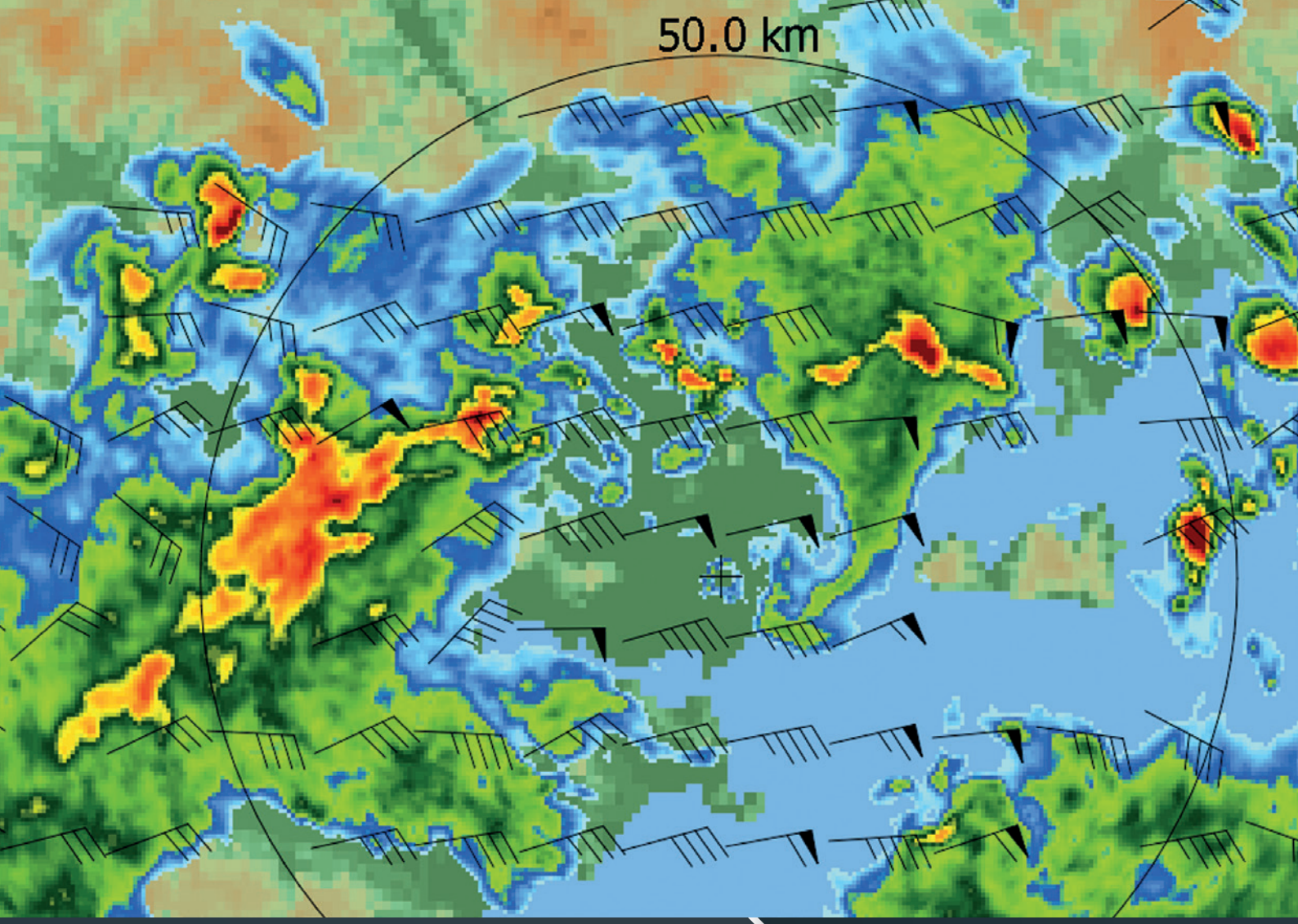
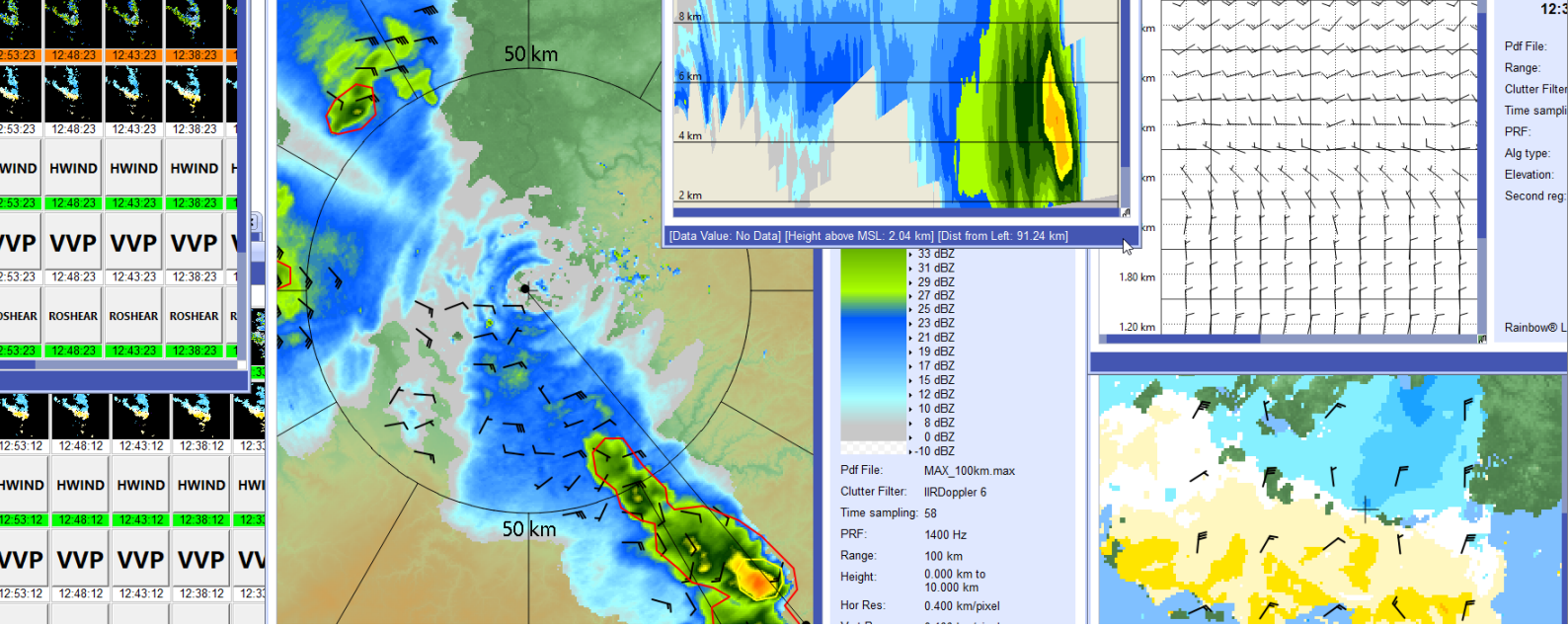


LEONARDO Germany GmbH

RAINBOW® 7

Application and Software

LEONARDO



Rainbow® 7 is the most comprehensive, state-of-the-art sensor management system for multi-radar and multi-lidar network management, data analysis and display available on the market today. State-of-the-art technologies such as cloud-native software design and client-server architecture guarantee full and unmatched performance.

RAINBOW® 7
Application and Software

Based on more than 30 years of experience in meteorological software design and development, the LEONARDO Germany flagship Rainbow® 7 fulfills all needs for a versatile application in the fields of radar management, weather monitoring/nowcasting, hydrology, aviation and research.

Leonardo's meteorological software package Rainbow® is an inhouse development and designed to provide our customers with fully integrated meteorological data processing systems for a multitude of applications such as severe weather monitoring, airport wind shear and shear related phenomena detection, hydro-meteorological flash flood monitoring and quantitative precipitation forecast, tracking and probabilistic short-term-forecasting, hydrometeor classification (rain, hail, etc.) and detection of non-meteorological targets.

Advanced technologies such as cloud-readiness, platform-independent client-server architecture, cutting-edge meteorological data processing and standardized interfaces for import, export, and interaction with open source and 3rd party frameworks guarantee a complete and unique performance. Emphasis is placed on user-friendliness and operational stability. Latest results from the research sector are incorporated into the algorithms used for data processing and product generation.

RAINBOW® 7
Highlights

- Supports cloud-servers, virtual machines or physical servers
- Cloud-native client/server architecture (full local and remote control)
- Data quality monitoring (e.g. solar hits, T/R Limiter, ZDR)
- Seamless interface to METEOR weather radar systems (incl. solid-state transmitter) and SKIRON3D® lidars
- Wind shear alerts based on sensor fusion (radar, lidar, LLWAS)
- Wake vortex detection for lidar data
- 3D Display for polar raw data incl. interactive 3D cross section
- Scientific data analysis incl. sensor inter-comparison
- SWAL4 certificated software development
- Platform independent: Linux and Windows operating systems
- Multi-language/multi-unit (SI, Aviation, etc.) support
- Support of single and multi-radar/lidar networks
- Integration of 3rd party weather radars, Doppler lidars, low level wind shear alert systems (LLWAS), weather stations, rain gauges, lightning detection systems, satellites, etc.
- Full scalable product legend supporting up to 256 radar levels and embedded Color Wizard
- GIS data integration (Vector, Raster)
- Dynamic severe weather overlays
- Support of OPERA/ODIM BUFR, HDF5, XML, ASCII, UF, NEXRAD Level 2, NetCDF, CfRadial, GRIB etc.
- Graphical image export to GIF, PNG, JPG, etc.
- ATC gateway for Doppler and polarimetric radar information: Asterix CAT008/009 weather messages
- Flexible slice and volume handling

leonardogermany.com

RAINBOW® 7
Products

RADAR VOLUME CORRECTIONS

BBC	– Bright Band Correction
VPC	– Vertical Profile Correction
OCC	– Occultation Correction
ZATC	– Attenuation Correction
3DCDP	– 3D Polar Clutter Map Processing

STANDARD METEOROLOGICAL PRODUCTS

PPI	– Plan Position Indicator
RHI	– Range Height Indicator
CAPPI	– Constant Altitude PPI
MAX	– Maximum Display
CMAX	– Column Maximum
VCUT	– Vertical Cut
MLVCUT	– Multi Line Vertical Cut
EHT	– Echo Height
TSTV	– Tilt Scan Topview

EXTENDED METEOROLOGICAL PRODUCTS

BASEZ	– Base Reflectivity
VAD	– Velocity Azimuth Display
VVP	– Volume Velocity Processing
UWT	– Uniform Wind Technique
LMR	– Layer Mean Reflectivity
VPR	– Vertical Profile of Reflectivity
FLCAPPI	– Flight Level CAPPI
FLMAX	– Flight Level MAX
SWAD	– Severe Weather Analysis Display
SMV	– Spectrum at Maximum Velocity
SRV	– Storm Relative Velocity
PVIS	– Point Visibility Analysis
SIVCUT	– Significant Intensity Radial VCUT
CONTOUR	– Contour Lines
ROWP	– Runway Oriented Wind Profiles
FPVD	– Flight Path Velocity Display

HYDROLOGICAL PRODUCTS

SRI	– Surface Rainfall Intensity
VIL	– Vertically Integrated Liquid
PAC	– Precipitation Accumulation
RIH	– Rainfall Intensity Histogram
RSA	– River Sub Catchment Accumulation
PRT	– Point Rainfall Total
RGRT	– Rain Gauge Radar Total
SSI	– Surface Snowfall Intensity
SAC	– Snowfall Accumulation

SHEAR PRODUCTS

ROSHEAR	– Runway Oriented Shear
SHEAR	– Shear Wind Detection 1D, 2D and 3D
HSHEAR	– Horizontal Shear
VSHEAR	– Vertical Shear
LTB	– Layer Turbulence

METEOROLOGICAL PHENOMENA DETECTION / ANALYSIS

ZHAIL	– Hail Detection
GF	– Gust Front Detection
SSA	– Storm Structure Analysis
MESO	– Mesocyclone Detection
VERG	– Vergence Product
TVD	– Tornado Vortex Detection
SWI	– Severe Weather Indicator incl. Microburst
DSD	– Dust Storm Detection
VBIRD	– Vertical Bird Distribution
VADC	– Volcanic Ash Detection and Classification
VATR	– Volcanic Ash Tracking
SCCL	– Stratiform-Convective Classification
IHL	– Icing Hazard Level
SLD	– Squall Line Detection
EDRC	– Eddy Dissipation Rate Calculation

FORECASTING AND WARNING PRODUCTS

RTR	– Rain Tracking
CTR	– Centroid Tracking
LRFC	– Lightning Risc Forecast
GFTR	– Gust Front Tracking
WRN	– Feature Detection and Warning

DUAL POLARIZATION

DPATC	– DP based attenuation correction
PHI2KDP	– PhiDP filtering and KDP derivation
ECLASS	– Echo Classification
DPSRI	– DP Surface Rainfall Intensity
DPFLA	– DP Freezing Level Analysis
SCDC	– Sea Clutter Detection and Correction
HAILSZ	– Hail Size Estimation
DPDSD	– DP Dust Storm Detection

RADAR MOSAIC / COMPOSITE

COMP	– Radar Composite Products

LIDAR PRODUCTS

CBHL	– Cloud Base Height
EDRCL	– Eddy Dissipation Rate Calculation
GFL	– Gust Front Detection
MBL	– Microburst Detection
WVDL	– Wake Vortex Detection

leonardogermany.com