

 Topographic Service
**Geographic Information
 Quality Management and Standardization
 in the Finnish Defence Forces**



FIG 2006
9 th October 2006 Germany Munich
 Kari Ingberg

 Topographic Service
 GIS Division

kari.ingberg@mil.fi
 +358 40-770 7410



Contents

- General information
- Interoperability and compatibility
- FDF GI Strategy
- NATO Geographic and Geospatial Policy
- STANAG
- ISO
- OGC
- Other issues

 Topographic Service
 GIS Division

kari.ingberg@mil.fi
 +358 40-770 7410



General Information

- Finland NATO/PfP member since 1994
 - Possibility to co-operation: MC&G WS, NATO School
 - Valuable contacts: NSA web pages
 - Concrete assistance: Peace keeping activities
- Topographic Service
 - “FDF Geographic Information Center”
in co-operation with Army, Air Force, Navy and Intelligence
 - 1th January 2007 part of Defence Intelligence Center

 Topographic Service
 GIS Division

kari.ingberg@mil.fi
 +358 40-770 7410



Interoperability and compatibility

- NATO interoperability
 - To do together
 - Similar procedures
 - Interoperability more emphasized than compatibility
- NATO compatibility (material)
 - No NATO material exists:
 - NATO national material: in use in some NATO country
 - STANAG: products complying STANAGs
 - Three levels of compatibility
 - Basic level: exists 50k Tactical Map (Topographic Map 1:50 000)
 - Interchangeability: map product complying some STANAGs
 - Commonality: similar maps as some other NATO-country

 Topographic Service
 GIS Division

kari.ingberg@mil.fi
 +358 40-770 7410



Interoperability and compatibility

- Purchase process (material)
 - What STANAGs exists ?
 - What other NATO-countries are using: UK, GER, FRA, NO (and SWE as PfP) ?
 - Decision of the level of compatibility (Basic level, Interchangeability, Commonality) ?
- Non NATO compatible material
 - Not use in any NATO country
and
 - No STANAGs applied

 Topographic Service
 GIS Division

kari.ingberg@mil.fi
 +358 40-770 7410



FDF GI Strategy

- Ministry of Defence / Material political program: Quality Strategy
 - Requirements from:
 - FDF
 - ISO 9000 and AQAP compliant Quality Management system required
 - Suppliers
 - From: ISO 9001 and AQAP Quality Management system required (certified)
 - To: Quality Plan (ISO 10005 Quality management systems -- Guidelines for quality plans)

 Topographic Service
 GIS Division

kari.ingberg@mil.fi
 +358 40-770 7410

FDI GI Strategy

- **National GI Strategy**
 - Ministry of Agriculture and Forestry
 - Finnish National Council for GI: metadata, harmonization/quality, information services, research/education
 - National Land Survey of Finland
 - EU/INSPIRE
- **Finnish GI industry and research**
 - Closer relations
- **“International Interoperability”**
 - NATO Geographic and Geospatial Policy
 - STANAG
 - ISO

kari.ingberg@mml.fi
+358 40-770 7410

Topographic Service
GIS Division

NATO Geographic and Geospatial Policy

- Defines NATO countries GI guidelines
- **FDI**
 - Noticed
 - As guidelines
 - Principles adopted

kari.ingberg@mml.fi
+358 40-770 7410

Topographic Service
GIS Division

STANAG

- **NSA/IGEWG**
- **60 GI related STANAGS**
- **FDI standardization wg**
 - Army, Air force, Navy
- **Adoption**
 - 2211: year 2004 (Coordinate systems)
 - Rest 59 on evaluation process
- **Implementation**
 - 2211: year 2007 training → 2008 operational
 - (EUBG products)
 - (Peace keeping products)

kari.ingberg@mml.fi
+358 40-770 7410

Topographic Service
GIS Division

1	MerivE ussi	1022 COMBAT CHARTS, AMPHIBIOUS CHARTS AND COMBAT/LANDING CHARTS
2	MerivE ussi	1113 GENERAL SPECIFICATIONS FOR PROJECTIONS REQUIRED FOR NAUTICAL CHARTS
3	MerivE ussi	1120 CODE DESIGNATION SYSTEM FOR SPECIAL NAVAL CHARTS
4	TopK ussi	2201 STANDARD UNIT OF VERTICAL MEASURE TO BE SHOWN ON LAND MAPS
5	TopK ussi	2205 USE OF IDENTICAL MAPS AND CHARTS (EXCLUDING NAUTICAL CHARTS)
6	TopK ussi	2210 TRIG LISTS (LISTS OF GEODETIC DATA)
7	TopK IlmavE	2211 GEODETIC DATUMS, PROJECTIONS, GRIDS AND GRID REFERENCES
8	TopK ussi	2213 GAZETTEERS
9	IlmavE+TopK	2215 EVALUATION OF LAND MAPS, AERONAUTICAL CHARTS AND DIGITAL TOPOGRAPHIC
10	IlmavE+TopK	2216 VERTICAL AERIAL CARTOGRAPHIC PHOTOGRAPHY
11	TopK ussi	2251 SCOPE AND PRESENTATION OF MILITARY GEOGRAPHIC INFORMATION AND DOCUM
12	TopK ussi	2253 MGD - ROADS AND ROAD STRUCTURES
13	MerivE ussi	2254 MGD - NAVIGABLE INLAND WATERWAYS
14	MerivE ussi	2255 MGD - PORTS
15	TopK ussi	2256 MGD - INLAND HYDROGRAPHY
16	TopK ussi	2257 MGD - RAILWAYS
17	TopK ussi	2259 MGD - TERRAIN
18	TopK ussi	2260 MGD - ELECTRIC POWER
19	TopK ussi	2263 MGD - COASTAL AREAS AND LANDING BEACHES
20	TopK ussi	2269 MGD - ENGINEER RESOURCES
21	TopK ussi	2271 MGD - URBAN AREAS
22	IlmavE IlmavE+TopK	3408 POSITION REFERENCE SYSTEMS FOR AERONAUTICAL CHARTS
23	IlmavE IlmavE+TopK	3409 PROJECTIONS FOR AERONAUTICAL CHARTS
24	IlmavE IlmavE	3412 AERONAUTICAL INFORMATION ON AERONAUTICAL CHARTS
25	IlmavE IlmavE	3591 CRITERIA FOR MAXIMUM ELEVATION FIGURE FOR AERONAUTICAL CHARTS
26	TopK TopK	3600 TOPOGRAPHICAL LAND MAPS AND AERONAUTICAL CHARTS 1:250,000 FOR JOINT OP
27	TopK ussi	3666 MAXIMUM SIZES FOR MAPS, AERONAUTICAL CHARTS AND OTHER GEOGRAPHIC PR
28	TopK ussi	3672 INDEXES TO SERIES OF LAND MAPS AND AERONAUTICAL CHARTS, DIGITAL GEOR
29	MerivE ussi	3673 IDENTIFICATION OF SOURCE DATA ON NAUTICAL AND SPECIAL NAVAL CHARTS
30	TopK ussi	3675 SYMBOLS ON LAND MAPS, AERONAUTICAL AND SPECIAL NAVAL CHARTS

31	TopK ussi	3676 MARGINAL INFORMATION ON LAND MAPS, AERONAUTICAL CHARTS AND PHOTOMAP
32	TopK ussi	3677 STANDARD SCALES FOR LAND MAPS AND AERONAUTICAL CHARTS
33	MerivE ussi	3678 METHOD OF ADDING THE MILITARY GRID TO NAUTICAL CHARTS IN THE NATO AREA
34	TopK ussi	3689 PLACE NAME SPELLING ON MAPS AND CHARTS
35	TopK ussi	3710 MILITARY CITY MAPS
36	MerivE ussi	3715 SPECIFICATIONS FOR FILING AND CHARTING OF NON-SUB CONTACTS (NSC) INFORM
37	TopK IlmavE+TopK	3809 DIGITAL TERRAIN ELEVATION DATA (DTED) EXCHANGE FORMAT
38	TopK ussi	3833 SYMBOLS FOR USE ON MAPS OF TRAINING AREAS FOR LAND FORCES
39	peruttu Maj Seppälä	3985 PREFERRED MAGNETIC TAPE STANDARDS FOR THE EXCHANGE OF DIGITAL GEOP
40	TopK ussi	3992 AGeoP-01 MGD - TERRAIN ANALYSIS - AGeoP-1(A)
41	TopK ussi	4387 AGeoP-05 ARC STANDARD RASTER PRODUCT (ASRP) - AGeoP-5
42	peruttu IlmavE	7010 PROVISION OF AIRFIELD MARKING INFORMATION
43	TopK TopK+IlmavE	7016 MAINTENANCE OF GEOGRAPHIC MATERIALS
44	TopK ussi	7021 POSITION INFORMATION GRAPHIC (PIG)
45	TopK ussi	7054 PROTECTED AREAS MAPPING (PAM)
46	TopK Maj Seppälä+	7072 VECTOR MAP (VMAP) LEVEL 0
47	TopK TopK+IlmavE	7074 AGeoP-03 Vol VOL II DIGITAL GEOGRAPHIC INFORMATION EXCHANGE STANDARDS (D
48	TopK TopK+IlmavE	7074 AGeoP-03 Vol VOL II DIGITAL GEOGRAPHIC INFORMATION EXCHANGE STANDARDS (D
49	TopK TopK	7077 AGeoP-06 UTMUPS STANDARD RASTER PRODUCT (USRPP) - AGeoP-6
50	TopK TopK+IlmavE	7098 COMPRESSED ARC DIGITIZED RASTER GRAPHICS (CADRG)
51	TopK TopK+IlmavE	7099 CONTROLLED IMAGERY BASE (CIB)
52	TopK TopK+IlmavE	7108 ARC DIGITIZED RASTER GRAPHICS (ADRG)
53	TopK ussi	7123 DIGITAL GEOGRAPHIC INFORMATION (DGI) ON CD-ROM AND CD-R
54	TopK TopK+IlmavE	7136 IDENTIFICATION OF LAND MAPS, AERONAUTICAL CHARTS, DIGITAL GEOGRAPHIC DA
55	peruttu TopK+IlmavE	7148 CATALOGUE METADATA FOR GEOSPATIAL INFORMATION
56	TopK TopK+IlmavE	7150 DIGITAL REPRODUCTION MATERIAL EXCHANGE STANDARD
57	TopK ussi	7163 VECTOR MAP (VMAP) LEVEL 1
58	TopK TopK+IlmavE	7164 SPECIAL AERONAUTICAL CHARTS
59	TopK ussi	7170 ADDITIONAL MILITARY LAYERS (AML) - DIGITAL GEOSPATIAL DATA PRODUCTS
60	TopK ussi	7173 THE ARC SYSTEM (THE EQUAL ARC-SECOND RASTER CHART/MAP SYSTEM)

ISO

- **More known in civilian organizations (STANAGS)**
- **19000 Geographic Information series**
 - ISO 19113 Geographic information – Quality Principles.
 - ISO 19114 Geographic information – Quality evaluation procedures.
 - ISO 19115 Geographic information – Metadata.
 - ISO/DIS 19131 Geographic information – Data product specification
 - ISO/FDIS 19138 Geographic information – Data quality measures
 - (ISO 2859 Sampling procedures for inspection by attributes.)
 - (ISO 3951 Sampling-procedures and charts for inspection by variables for percent nonconforming.)
- **Topographic Service ISO 9001 certified organization**
- **AQAP 2110 required in co-operation**

kari.ingberg@mml.fi
+358 40-770 7410

Topographic Service
GIS Division



OGC

- **More known in civilian organizations (STANAGS)**
- **Open Geospatial Consortium**
 - Web Service Common Implementation Specification
 - Coordinate Transformation Service Implementation Specification
 - Location Service (OpenLS) Implementation Specification
 - Web Coverage Service (WCS) Implementation Specification
 - Web Feature Service (WFS) Implementation Specification
 - Web Map Context Implementation Specification
 - Web Map Service (WMS) Implementation Specification
- **OGC → ISO (? → DGIWG)**
- **SOA (Service Oriented Architecture) in GI services**
- **OGC functionality covered with SOA compliant Web Services**

Kari Ingberg@mil.fi
+358 40-770 7410

POLIISIJOHTAMON | KANSALISVAIKUTUS | THE FINNISH DEFENCE FORCES



Other issues

- **Digital Geospatial Information Working Group (DGIWG)**
 - No NATO organization
 - Profiles/standards/instructions on ISO and OGC
 - Possible source for STANAGs
 - Finland not a member: no role in FDF at the moment
- **Research project**
 - "Geographic Information Quality Management and Standardization in the Finnish Defence Forces" on process
 - Degree of NATO GI interoperability and compatibility

Kari Ingberg@mil.fi
+358 40-770 7410

POLIISIJOHTAMON | KANSALISVAIKUTUS | THE FINNISH DEFENCE FORCES



Topographic Service

Geographic Information Quality Management and Standardization in the Finnish Defence Forces

FIG 2006
9 th October 2006 Germany Munich

Kari Ingberg

Kari Ingberg@mil.fi
+358 40-770 7410

POLIISIJOHTAMON | KANSALISVAIKUTUS | THE FINNISH DEFENCE FORCES