U.S. ARMY EUROPE

2015 ANNUAL REPORT
GEOGRAPHIC INFORMATION SYSTEM

USAREUR SUSTAINABLE RANGE PROGRAM

Executive Summary

This report summarizes the activities, products and projects completed by the U.S. Army Europe (USAREUR) Sustainable Range Program (SRP) Geographic Information System (GIS) team during the 2015 calendar year.

The purpose of the report is to inform the SRP community, customers, GIS users and essential partners of the achievements and level of support provided by the USAREUR SRP GIS program. It provides accountability and visibility and raises awareness of the GIS resources available to support their missions.

The report details the structure and organization of the USAREUR SRP GIS, current products and services and provides a summary of project milestones, achievements and lessons learned during 2015.

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1 USAREUR SRP GIS

SRP GIS Mission

Throughout the Army, the Sustainable Range Program (SRP) Geographical Information System (GIS) mission is to create, analyze, manage and distribute authoritative standardized spatial information, products and services for the execution of training strategies and missions on U.S. Army ranges and training lands. The SRP GIS program strives to provide the SRP community, trainers and Soldiers with easily accessible and user-friendly products and applications that allow them to leverage the most accurate and complete geospatial datasets.

Below: Location of USAREUR SRP Regional Support Center (RSC) at Grafenwoehr Training Area

A U.S. Soldier identifies an unknown point on a military map during the Expert Infantryman Badge qualification at the 7th Army JMTC's Grafenwoehr Training Area, Germany. Photo by VI Specialist Gerhard Seuffert.

Implementation

In USAREUR, the GIS component of the Sustainable Range Program is implemented via two support structures. First, the Regional Support Center (RSC), located at Grafenwoehr Training Area, provides centralized support and management for SRP GIS efforts in USAREUR. Second, the SRP GIS coordinators at Grafenwoehr and Joint Multinational Readiness Center (JMRC) Hohenfels provide direct support for training activities at the installation level.

U.S. Army Sustainable Range Program

The SRP is the Army's overall approach for improving the way in which it designs, manages and uses its ranges to ensure long-term sustainability. SRP is defined by its two core programs, the Integrated Training Area Management (ITAM) program and the Range and Training Land Program (RTLP). Both focus on the doctrinal capability of the Army's ranges and training lands.

Above: Tower Barracks, Grafenwoehr

The Integrated Training Area Management (ITAM) Program

ITAM's goal is "optimum, sustainable use of training lands through uniform land management." This involves understanding and balancing the needs of the environment with the needs of the training mission. The objectives of the Army's ITAM program are to:

› Achieve optimum, sustainable use of lands for the execution of realistic training and testing by providing a core capability that balances usage, condition and level of maintenance.
› Implement a management and decision-making process that integrates Army training and other mission requirements for land use with sound natural resources management.
› Advocate proactive conservation and land management practices by aligning Army training land management priorities with the Army training and readiness priorities.

The major components of the ITAM program are:

› Training Requirements Integration (TRI),
› Range and Training Land Assessment (RTLA),
› Land Rehabilitation and Maintenance (LRAM),
› Sustainable Range Awareness (SRA), and
› Geographic Information System (GIS).

The Range and Training Land Program (RTLP)

Developing and improving Army ranges is a continuous and challenging process that requires integrated management and comprehensive planning. The RTLP planning process integrates mission support, environmental stewardship, and economic feasibility and defines procedures for determining range projects and training land requirements to support live-fire and maneuver training. The planning process occurs annually.

(top) Erosion control;
(*bottom*) open maneuver area maintenance.

USAREUR SRP GIS Timeline

ENTERPRISE GIS **OFFLINE** **WEB** **MOBILE**

ACCESS TO INFORMATION

ARM Mobile		MOBILE APPS
SFC	EO App	TSAE Handbook

ArcGIS online
Portal for ArcGIS
Esri maps for MS Office

ArcGIS Server
Application   Tap In
GIS Services

TSAE Kiosks
PDF Maps, ITAM Viewer

GIS Data Services
ArcGIS Server   Map Services

ITAM MAPPER   Army Range Mapper (ARM)
ArcIMS Web Mapping   ArcGIS Server JavaScript API Web
Application   Mapping Application

CD	DVD	PDF Map Library	Dual Layer DVD	ITAM VIEWER	Next Gen. Viewer

Soldier Field Cards   Raised Relief Maps   Land Nav Maps   HARD COPY MAPS
Installation Specials
Range Maps   Military Installation Maps (MIM)   Map Books

Shapefiles   Personal   File   Multi-User   Cloud
                   Geodatabase   Geodatabase   Geodatabase   Infrastructure
ArcIMS   ArcSDE   ArcGIS Server   ArcGIS Online   Portal for
                                                                                                    ArcGIS

TIMELINE

2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 **2016** 2017 2018

6

USAREUR SRP GIS Customer Support Pyramid

PRODUCTS AND SERVICES | **CUSTOMERS** | **USER TYPES**

• Annual GIS Report, 5-Year Plan
• SRP GIS Update Briefings
• Command Overview Map

Com-manders, Organization Managers

MANAGERS

• ESRI ArcGIS-Arcinfo, ArcGIS Server, ESRI Developer Network
• ITAM Viewer Data Disks
• Online SRP Geodata and Map Services
• SRP GIS Data Warehouse
  (Raster Repository and Enterprise Geodatabase)

SRP GIS personnel and selected external contractors

DEVELOPERS

• ESRI ArcGIS-ArcInfo Suite
• ERDAS Imagine Image Analysis Software
• Adobe Acrobat and Photoshop Image processing software
• ITAM Viewer Data Disks
• Online SRP Geodata and Map Services
• SRP GIS Data Warehouse
  (Raster Repository and Enterprise Geodatabase)

Professional GIS personnel at SRP, DPW & Environmental GIS, Topographic Units, selected external contractors

ANALYSTS

• ESRI ArcGIS-ArcView Suite
• ITAM Viewer
• Tap In
• TSAE Kiosk
• Online SRP Geodata and Map Services

US Soldiers, SRP Personnel (ITAM & RTLP), Training Support Personnel, Range Safety, DPW and Environmental Personnel, selected external contractors

MAPPERS

• ITAM Viewer
• Tap In
• ARM & SFC Mobile Apps
• TSAE Kiosks
• SRP Website Resource Matrix
• Custom maps
• Standard SRP GIS map products

U.S. Soldiers, Training Area Managers, Garrison and HQ Civilians, Range Safety, Training Support Civilians, SRP Personnel, DPW & Environmental personnel, Host-Nation agencies, selected foreign military personnel

VIEWERS

2015 in Review

Training Intensity Surges in 2015

Operation Atlantic Resolve, a recurring series of training rotations in Eastern Europe, which began in April 2014, continued to expand in scale and intensity throughout 2015, including USAREUR home stationed units such as the 173rd Airborne Brigade Combat Team and U.S. based Regionally Aligned Forces (RAF) such as the 3rd Infantry Division out of Fort Stewart, Georgia, and the 4th Infantry Division out of Fort Carson, Colorado.

These units conducted large scale multinational exercises at Grafenwoehr and Hohenfels, including Combined Resolve V, which involved more than 4,600 participants from 10 NATO countries (Albania, Bulgaria, France, Germany, Lithuania, the Netherlands, Norway, Romania, Slovenia) and three partner nations (Georgia, Montenegro and Serbia). http://www.eur.army.mil/jmtc/CombinedResolve.html#CombinedResolveIV

The same units also made multiple deployments to the Baltic countries (Estonia, Lithuania and Latvia), Poland, Bulgaria and Romania during 2015. Atlantic Resolve also expanded in 2015 to include exercises in Hungary and Slovakia.

In addition to Atlantic Resolve, USAREUR units also participated in the Saber Guardian and Rapid Trident field exercise at Yavoriv, Ukraine, and maintained continuous presence in Ukraine providing peace keeping training for Ukrainian units.

A Bulgarian army soldier, part of Operational Mentor Liaison Team (OMLT) 11, looks at a map of the area while training at the Joint Multinational Readiness Center (JMRC) in Hohenfels, Germany. Photo by Spc. Sean McLaughlin.

Other multinational operations included joint training exercises in Spain, Slovenia, France, Norway, and support for AFRICOM exercises.

Traditional home station training continued at the Germany and Italy Local Training Areas, as well as joint training with Bundeswehr units on U.S. and German installations, and airborne operations at drop zone locations throughout Europe and Africa.

The USAREUR SRP RSC team provided mapping support to each of these training events, liaising with host nation Ministries of Defense and the National Geospatial Intelligence Agency (NGA) to acquire foreign geospatial datasets, maps and imagery, producing custom map products, Soldier's Field Cards, and imagery products. The RSC team also worked closely with the Training Aids Production Center (TAPC) to produce custom training aids such as terrain boards, large format maps, and imagery prints.

The increased training intensity in Europe during 2015 and ongoing European Reassurance Initiative (ERI) investment in range infrastructure in Eastern Europe locations resulted in the USAREUR RSC team carrying out significantly more training site visits for field surveys, and greatly increasing output of map products, Soldier's Field Cards and other geospatial products.

U.S. units taking part in exercise Saber Strike at Adazi Training Area, Latvia 2015

A Lithuanian Soldier and his U.S. counterpart study a map while making plans for a combined operation during exercise Saber Strike 2014

A United States Army Abrams M1A2 Main Battle Tank leads the charge during a battle demonstration along with two Lithuanian Land Forces M113 Armored Personnel Carriers during the final day of Saber Strike 2015 at the Great Lithuanian Hetman Jonusas Radvila Training Regiment, June 18, 2015. Photo by Sgt. James Avery.

2015 GIS SUPPORT STATISTICS

107,350
Soldier's Field Cards produced for distribution throughout USAREUR

33,430
Military Training Area Maps printed to support training in USAREUR

2,129
ITAM Viewer DVD sets distributed throughout USAREUR

457
GIS / Map data requests submitted, processed and completed

132
Technical GIS support requests completed by USAREUR SRP GIS

70
New aerial, satellite and topographic imagery datasets acquired by USAREUR SRP GIS

27
New or updated Soldier's Field Cards created

27
Site visits to USAREUR and host nation training areas for GIS data collection, coordination and validation

19
Installation, Industry and Training Events attended or hosted by USAREUR SRP GIS

12
RTLP Range Modernization projects supported by USAREUR SRP GIS

9
GIS briefings or training sessions provided at Army workshops and other events in Europe and the US

8
SOPs, Reports, Plans and Best Management Practice (BMP) documents created by USAREUR SRP GIS

GPS/GIS Site Survey Support for Operation Atlantic Resolve (OAR)

The USAREUR RSC GIS Team supported the USAREUR Range and Training Land Program (RTLP) on site visits to Estonia, Latvia, Lithuania, Poland, Bulgaria, Romania and Hungary during 2015, assisting with surveying proposed range project locations, collecting GPS data on existing ranges, developing map products and working with host nation installation management staff and environmental protection officers to develop Soldier's Field Card information.

The RSC team use the Range Managers Toolkit (RMTK) extension for ArcGIS to develop range footprints and Surface Danger Zones, to support project siting and analysis.

Two GIS analysts from the RSC team have been designated responsible for supporting Atlantic Resolve – North (Baltics and Poland) and South (Bulgaria, Romania, Hungary, Slovakia) respectively, in addition to their traditional support AORs. This has created subject matter expert familiarity with the training areas, and enabled relationships with foreign installation POCs to be maintained through recurring site visits.

Liaison with host nation military geographic departments via the NGA International Foundation GEOINT Activities office has been invaluable for acquiring host nation map products and data, ensuring that U.S. units are using the same mapping as their NATO allies.

The European Reassurance Initiative (ERI)

The European Reassurance Initiative (ERI) is a U.S. DoD fund to increase capability, readiness and responsiveness of NATO forces to address any threat or destabilizing action in regions that feel most threatened by Russia's actions against Ukraine.

ERI funded activities:

1. Continued increased U.S. military presence in Europe;
2. Additional bilateral and multinational exercises;
3. Improved infrastructure to allow for greater responsiveness
4. Enhanced pre-positioning of U.S. equipment in Europe
5. Intensified effort to build partner capacity for newer NATO members and other partners

The ERI program includes funds to provide increased range capabilities to NATO partner nations. The USAREUR Range and Training Land Program (RTLP) and the Office of Deputy Chief of Staff, Engineer (ODCSENG) have been working together to identify range capabilities and future requirements at Atlantic Resolve training locations and develop plans for range modernization, siting and construction projects.

Captions:
(Top) President Obama visits troops in Estonia, October 2014.
(Middle) USAREUR Range and Training Land Program and SRP GIS personnel discuss the proposed plans for building and development of facilities and firing ranges at Pabrade Training Area, Lithuania with members of the Lithuanian Army's Land and Range Development Joint Group, and the ERI Advance Team.
*(Bottom) SRP GIS Analyst providing GPS/GIS mapping support to the USAREUR Range and Training Land Program (RTLP) site survey in Tata, Hungary (Dec 2015).*

CHELMNO VISTULA CROSSING SITE

Custom Maps and Technical Support

Walk-in technical support and standard and custom map product requests have increased due in large part to the new Regionally Aligned Force (RAF) units who are unfamiliar with European training areas and logistics locations requiring customized geospatial products to support them in planning their training. The bulk of custom map requests in 2015 involved regional mapping products showing country-wide or regional overviews of training locations, for example the Baltic region, and products showing routes to these sites from German training locations.
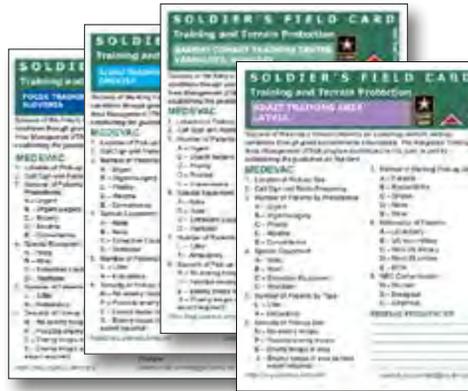
Soldier's Field Cards

Soldier's Field Cards containing maps, environmental, safety and local training support information have been developed for each of the 15 major training areas taking part in Atlantic Resolve. The RSC team have worked closely with foreign environmental protection specialists at the host nation training areas to acquire environmental policy information, restrictions to training, and environmental data layers.

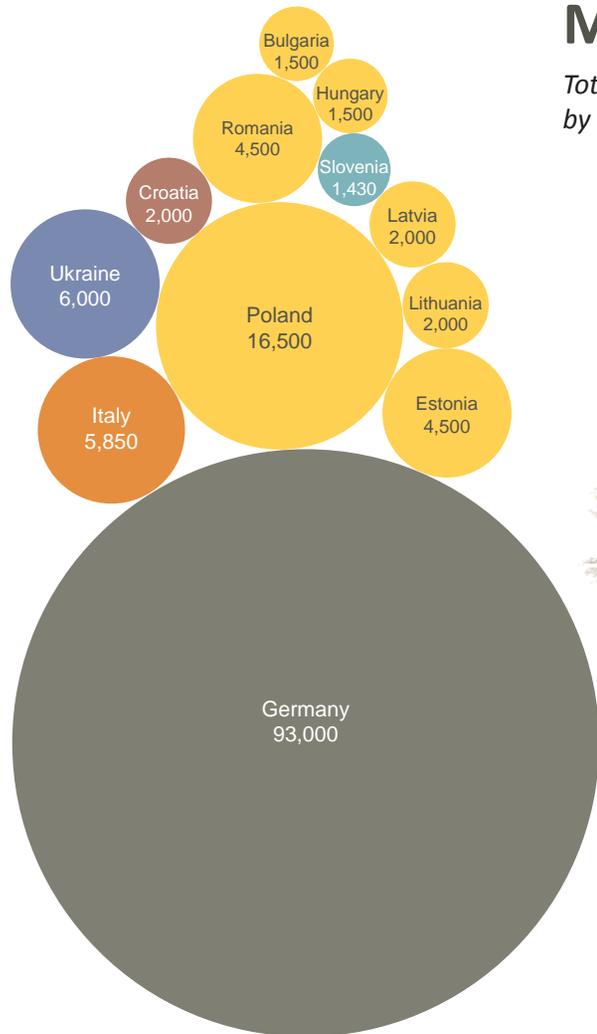## Standard Training Area Map Production

USAREUR SRP have become the main supplier of foreign training area maps to U.S. units in Europe, funding printing and distribution of over 33,000 training area maps during 2015. USAREUR SRP are working with the NGA to assign National Stock Numbers (NSN) to these foreign products in order to make them discoverable in the Defense Logistics Agency (DLA) Supply Chain so that units can order bulk map supplies prior to deployment to Europe.

Standard 1:25,000 and 1:50,000 scale host nation produced military installation maps were sourced from the host nation departments of Defense via liaison with National Geospatial Information Agency (NGA) Office of Geography International/Military Co-Production Team.
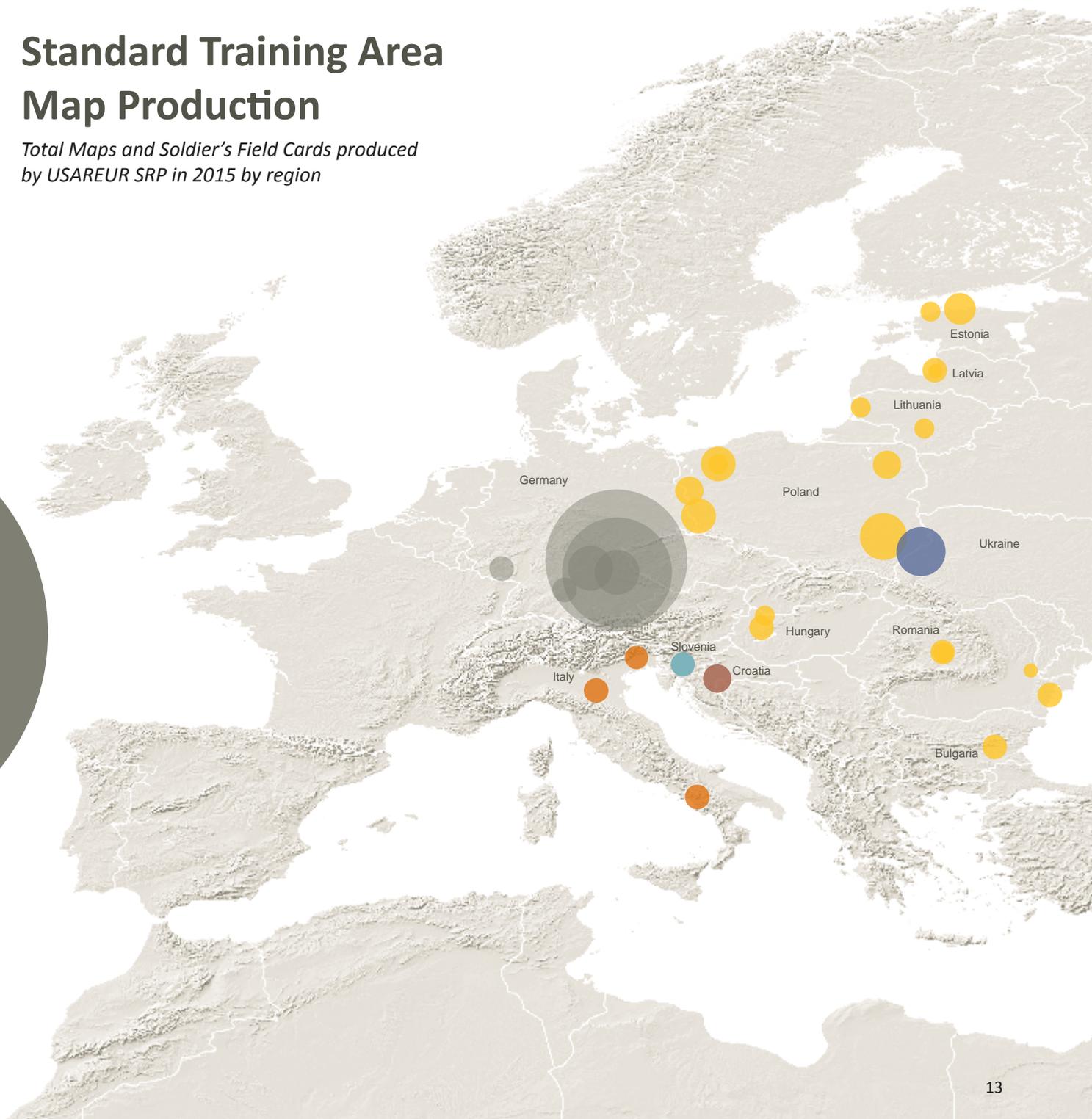
USAREUR SRP acquire host nation mapping, geo-reference and manage printing and distribution to U.S. units to support training operation planning.

Standard Training Area Map Production

Total Maps and Soldier's Field Cards produced by USAREUR SRP in 2015 by region

Bulgaria
1,500

Hungary
1,500

Romania
4,500

Slovenia
1,430

Croatia
2,000

Latvia
2,000

Ukraine
6,000

Poland
16,500

Lithuania
2,000

Italy
5,850

Estonia
4,500

Germany
93,000

Region

- Atlantic Resolve
- Croatia
- Germany
- Italy
- Slovenia
- Ukraine

Estonia

Latvia

Lithuania

Germany

Poland

Ukraine

Hungary

Romania

Slovenia

Croatia

Italy

Bulgaria

Home Station Training Area GIS Support:

Bundeswehr Geo-Information Center (BGIC) Collaboration

Vegetation Analysis at Grafenwoehr Training Area

Terrain Analysis at JMRC Hohenfels

During 2015 the SRP GIS team completed an update to the 1:25,000 scale military training area map of Grafenwoehr, in partnership with the Bundeswehr GeoInformation Office (BGIC). The team made several coordination visits to Euskirchen (BGIC HQ) and hosted the Bundeswehr cartographers at Grafenwoehr Training Area, to provide feed-back and updates to the map. Drafts of the new Oberdachstetten Local Training Area 1:10,000 map and JMRC Hohenfels 1:50,000 and 1:25,000 scale maps are in progress and USAREUR SRP continue to provide input to these products as they are reviewed.

Forest growth and advancement in certain portions of the GTA (e.g. maneuver spaces) may encroach upon military training land requirements. In order to assess potential forest encroachment GTA ITAM GIS carried out a desk study vegetation analysis using a combination of Aerial Imagery and LiDAR (collected by ITAM), fauna habitat studies data (provided by DPW Environmental) and historic Forest Inventory data (collected by German Federal Forestry).

In August 2015 Exercise Swift Response 15, a multinational airborne training exercise took place at Hohenfels training area. The exercise aimed to test the allies' high-readiness forces and demonstrate the alliances capacity to deploy rapid response troops in support of European operations.

Hohenfels training area was used to execute airborne parachute drops, an airfield capture and subsequent force build-up. JMRC ITAM GIS staff provided terrain analysis for the preparation work for the drop zone and the Hohenfels Short Take Off and Landing tactical airstrip (STOL).

LiDAR derived products showing the heavily tank rutted drop zone were created to assist troop construction teams to identify areas for leveling.

Grafenwoehr Military Training Land Requirements (MTLR) Map
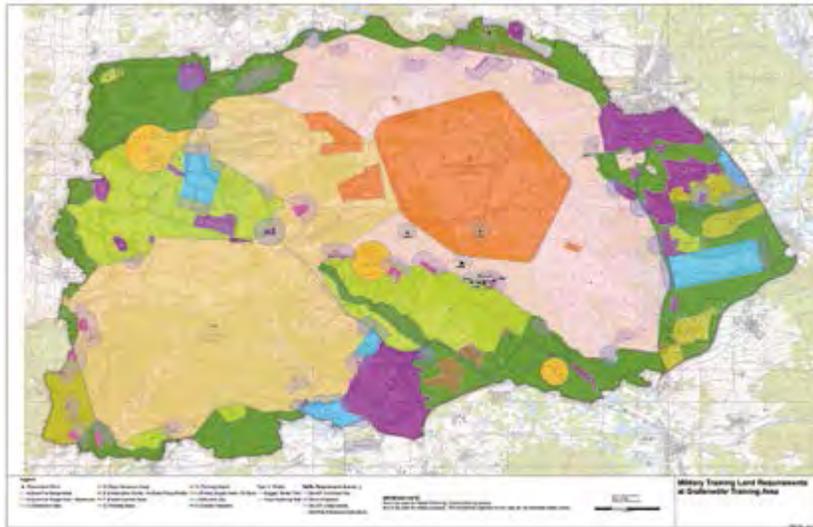
In order to meet both current and future U.S., NATO and other partner training land requirements it is critical that all Grafenwoehr Training Area land management stakeholders understand the military training and land utilization expectations that their land management efforts must support.

The GTA Military Training Land Requirements (MTLR) Map and its accompanying documentation was created to facilitate this communication and understanding.

The MTLR map classifies land areas at Grafenwoehr Training Area according to their military utilization.

The map was created through reviewing, rationalizing and categorizing current military land use at GTA and refining it in areas where potential future requirements were anticipated.

The Military Utilization Types were defined taking into account the German Federal Forestry 'Forest Function Support Requirement' categories to enable efficient translation between the two. The MTLR map and documentation was created in consultation with representatives of DPW Environmental Conservation Branch, GTA Range Operations, Integrated Training Area Management (ITAM), and the German Federal Forestry.

LRAM Rotation Damage Repair

JMRC ITAM GIS staff used Digital Globe satellite imagery to help identify post rotation training area damage and prioritize repair. Satellite imagery from April 2015 was acquired and imagery analysis used to identify exercise trenches and other training area damage. This was then compared with post rotation satellite imagery from June 2015 to identify how successful repair work had been. This analysis is only possible due to the availability of extremely recent Satellite imagery available from the Digital Globe Enhanced View (EV) Web-Hosting Service (https://evwhs.digitalglobe.com).

Sentinel Multispectral Imagery

In 2016 JMRC ITAM GIS will test Sentinel Multispectral imagery to evaluate if it can be used to identify training area damage. Sentinel imagery has a spatial resolution of 10m and will be collected over the training area every two weeks. Its multispectral properties mean remote sensing analysis using Erdas Imagine can be conducted, potentially enabling automated training area damage detection.

Training Support Center (TSC) Support

Routine site visits were made to the Baumholder, Stuttgart, Kaiserslautern, Wiesbaden, Benelux and Ansbach Training Support Centers (TSC) to review map products, data coverage and future requirements, and carry out field surveys.

SRP GIS assisted USAREUR ITAM in carrying out field assessments at both GTA and Oberdachstetten LTA in support of the RTLA program. At GTA this included two assessments to evaluate potential land damage following major training exercises at GTA. In Oberdachstetten an assessment of the extent of invasive teasel plant growth was made.

Several site visits were made to Italy, Slovenia, and Spain to provide GPS data collection and mapping support to the Regional Training Support Division – South, surveying newly identified training areas, ranges and drop zone locations. Data and map products created as a result of these surveys is made available to training units via the Tap In Resource library.

GIS Data and Product Request Tracking

The SRP GIS Regional Support Center (RSC) and the ITAM office at JMRC Hohenfels handle walk in requests for GIS support from training units and training support civilians on a daily basis. Requests include standard map product issue, development of custom map products, technical support requests and requests for copies of digital data.

All requests are logged using Data/Product request forms. In total 457 map requests were processed by the RSC team in 2015, and 132 technical support calls were logged.

The SRP RSC provides on-demand custom mapping services to USAREUR training support staff and training units to support training area management, planning and training. These requests include enlargements of existing map products, new products requiring changes in scale or paper size, or customized content such as a specific map overlay or background imagery. Custom map tasks also include mapping areas not previously mapped by USAREUR SRP, which require data collection and creation of new map products from scratch.

Custom maps can be requested either by walk-in request at the Grafenwoehr RSC office (Bldg 3007 Grafenwoehr Training Area), GTA Range operations (Bldg 3015 Grafenwoehr Training Area), or for units

home stationed at JMRC Hohenfels, the ITAM office (Bldg 1 Hohenfels Training Area). Requests can also be made at any USAREUR Training Support Center or via the USAREUR SRP website (https://srp.usareur. army.mil) or by email to usarmy.bavaria.jmtc.list. usareur-srp@mail.mil.

Above: USAREUR SRP GIS Product Request Form
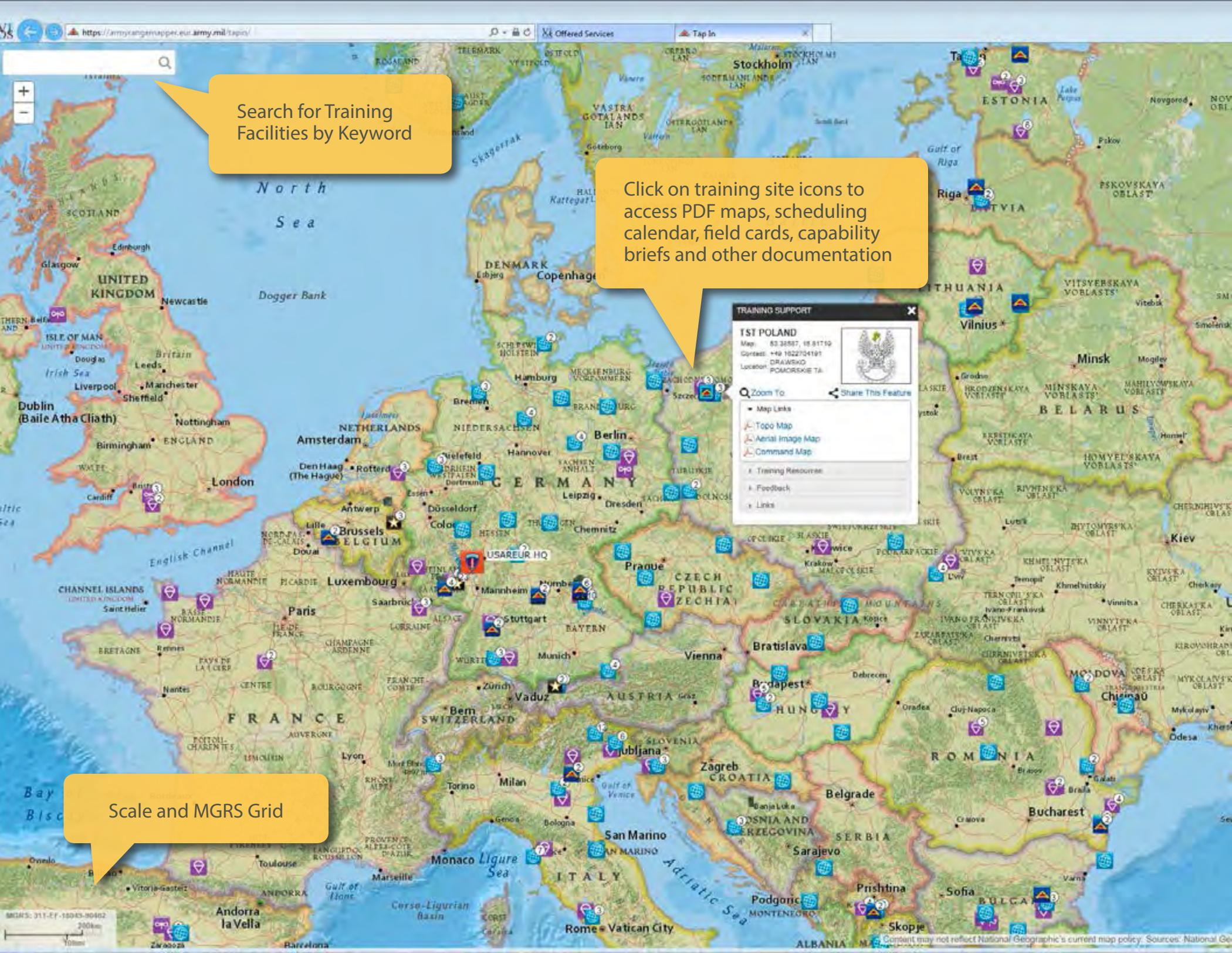
Search for Training Facilities by Keyword

Click on training site icons to access PDF maps, scheduling calendar, field cards, capability briefs and other documentation

TRAINING SUPPORT

TST POLAND

Map: 53.32587, 15.61710
Contact: +48 1622704191
Location: DRAWSKO
            POMORSKIE TA

🔍 Zoom To   Share This Feature

▾ Map Links
  📄 Topo Map
  📄 Aerial Image Map
  📄 Command Map

▸ Training Resources

▸ Feedback

▸ Links

USAREUR HQ

Scale and MGRS Grid

MGRS: 31T EF 18049 90402
200km
10mm

Content may not reflect National Geographic's current map policy. Sources: National G

Sidebar Menu

- Switch Background Maps
- Add Military Feature overlays
- Add installation maps and imagery
- Tools to measure routes and areas
- Print map to PDF
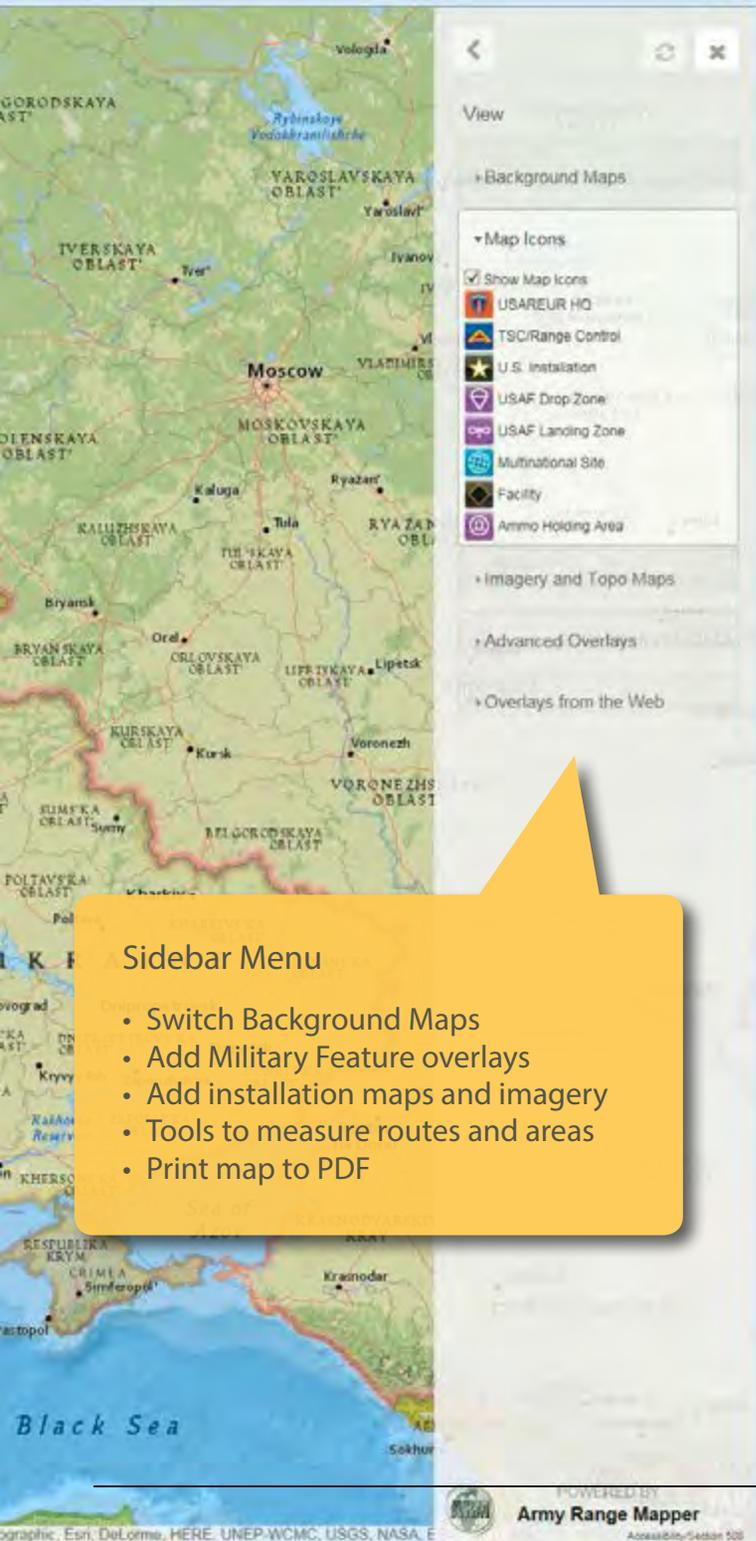
Tap In – USAREUR's training resource discovery tool

The Tap In website, a google maps style web mapping application developed by USAREUR SRP, currently has over 440 training areas, drop zones and military installations mapped.

Data download functionality was added to Tap In in 2015, to include raw GIS layers and raster imagery stored in the Resource Library folder attached to each training site icon.

Tap In Web Traffic jumped in 2015, due in large part to increased usage by units rotating into Europe, and continued outreach and publication of the service through flyers, briefings and workshop events.

Hits on the Tap In application jumped 252% in 2015 compared to 2014, and unique visitors were also up 179% on the previous year.

Visits to the Sharepoint deployments of Tap In were down in 2015 compared to 2014, with approximately 50% fewer visitors. This is due in large part to Sharepoint administrators moving Tap In from their unit homepage to a secondary page, or adding a link to Tap In directing more users to the full-screen version of Tap In.

Table 1 and 2 - Tap In Web Traffic

FULL SCREEN TAP IN	2014	2015	PERCENTAGE CHANGE
Hits	121,415	427,501	252.10%
Page Views	55,299	121,129	119.04%
Visits	3,855	6,548	69.86%
Unique Visitors	1,005	2,809	179.50%

TAP IN SHAREPOINT DEPLOYMENTS	2014	2015	PERCENTAGE CHANGE
Hits	244,459	183,346	-25.00%
Page Views	58,205	48,770	-16.21%
Visits	8,241	4,067	-50.65%
Unique Visitors	2,014	1,962	-2.58%

Sustainable Range Awareness (SRA) and GIS Product Development

The USAREUR SRP GIS team has over a decade of experience in creating and distributing a range of geospatial products and services to training area managers, range managers, installation management and training units across USAREUR.

These products are available to DoD and U.S. military personnel for military operations, exercise planning and training. They are also available in limited quantities to host nation organizations, contractors and multinational units for execution of training plans and projects on U.S. facilities.

To request products or services from USAREUR SRP GIS or for more information, contact usarmy.bavaria. jmtc.list.usareur-srp@mail.mil or visit our website at https://srp.usareur.army.mil

Training and Event Support

A total of 19 training support events, conferences, workshops, training sessions or working group meetings were supported by the USAREUR SRP GIS team in 2015. The team supported several multinational partnership events including hosting the Baltic nations, French and Israeli Ministries of Defense and Environment visits to Grafenwoehr, supporting event logistics, set-up, and providing technical briefings on GIS data management and services.

ITAM Viewer DVD Set

The ITAM Viewer DVD set consists of Army-approved GIS data viewing software bundled with a collection of the latest SRP GIS data, imagery and topographic maps covering over 400 USAREUR and multinational training sites. (100 more sites than 2014!)

Since 1999, this product has evolved from a one-CD product to the current five-DVD volume. USAREUR SRP produced 2000 copies of the ITAM Viewer 3.2 DVD set in May 2015.

With the ITAM Viewer you can:

- BUILD - Add and remove data layers (including .shp, .gml, and SID imagery).
- DRAW – Use the annotation tool to draw features, lines and areas and add comments to the map.
- SHARE - Save annotation as a GIS layer (shapefile) for sharing with other users.
- IDENTIFY – Use the pointer tool to copy map coordinates to the clipboard.
- VIEW - Lens tool can be used to create a window with magnified view.
- MEASURE - Measure tool calculates line length and polygon area.
- COPY - Snapshot tool copies the current view to paste into other applications (e.g. Power Point).

Planning

Five year GIS plans were updated for GTA, HTA and the Regional Support Center. These documents outline goals and objectives for the program and are updated annually.

Raised Relief Maps and Terrain Boards

USAREUR SRP GIS and the Training Aids Production Center (TAPC) have the capability to produce 3D plastic molded raised relief maps (RRM) and foam cut and carved terrain boards covering a selection of USAREUR training areas and regional extents.

Units can request custom relief maps by submitting a VIOS (Visual Information Ordering Site) order to their local Training Support Center (TSC) www.vios.army.mil.

The USAREUR SRP GIS team supports TAPC production by processing elevation models and preparing maps to be printed or hand painted on the terrain boards.

Option 1
Thermoformed
Relief Model
(Max size 51" x 31")

Option 2
3D Terrain Board

Option 3
2D Terrain Board with
3D features

Table 3: 2015 produced relief maps

THERMOFORMED RELIEF MAPS	TERRAIN BOARDS
Arghandab River Valley, Afghanistan	Papa DZ
Lybia - Country wide	King DZ
North West Africa	HFCA Wiesbaden
Novo Selo Training Area, Bulgaria	Grafenwoehr 1:10,000
Sinai Peninsula, Egypt	South Base, Serbia
Lake Chad Basin, Africa	Monte Romano, Italy
Central East Africa	Pocek, Slovenia
Hohenfels Training Area	

U.S. Soldiers with the 2nd Battalion, 503rd Infantry Regiment, 173rd Airborne Brigade receive instruction and training for a map reading and land navigation course at Monte Romano MTA in Vicenza, Italy, during the brigade field training exercise. (U.S. Army photo by Paolo Bovo\Released)

(Top) U.S. paratroopers review drop zone area map at Aviano Air Base, for an airborne operation on Rivolto Air Base, Italy, Oct. 28, 2015. Photo by VI Specialist Paolo Bovo. (Middle) U.S. Soldiers of Headquarters and Headquarters Service Company, 1st Military Intelligence Battalion (Aerial Exploitation) conduct land navigation drills, during their field training exercise at the Sand Dunes Training Area in Wiesbaden, Hessen, Germany. Photo by Mark Warren. (Bottom) U.S Soldiers and a Czech soldier place unit tokens on a map during training exercise Saber Junction 2014 at the Joint Multinational Readiness Center in Hohenfels, Germany. Photo by Spc. John Cress Jr.

3 GIS Data Acquisition, Development and Standardization

2015 USAREUR SRP Geospatial Data Acquisition

During 2015, USAREUR SRP continued to acquire high-resolution imagery and topographic raster data over USAREUR training areas. This data is acquired either through liaison with partner organizations like the NGA, Army Geospatial Center, IMCOM, and host-nation defense forces or by contract with private data providers.

20cm Aerial Imagery for Grafenwoehr Training Area flown in spring 2014 was processed and delivered, documenting a large storm event that damaged large areas of forest at GTA.

LiDAR imagery collected in September 2014 by the Bavarian Survey Office (Landesvermessungsamt) was acquired free of charge by USAREUR ITAM via a USAREUR level cooperation agreement with the German authorities.

The Digital Globe EVH service proved valuable for acquiring very recent satellite imagery (up to 1 month old) over USAREUR training areas, enabling before and after rotation maneuver area impact analysis to be conducted at JMRC Hohenfels.

Through partnership with the NGA International Military Cooperation department, topographic map coverage of all training areas in Poland was acquired, as well as imagery and vectors for training areas in Spain, Norway, Romania, Finland and Hungary.

All acquired imagery can be viewed via the Tap In web mapping application, or on the annual ITAM Viewer data DVD product.

Tap In https://armyrangemapper.eur.army.mil/tapin/
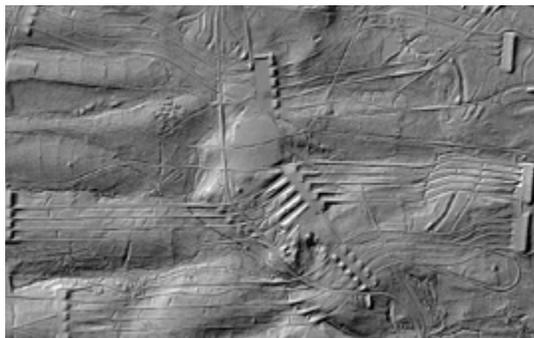
(top) 2010 GTA aerial image
(middle) 2014 GTA aerial image showing tornado damage
(bottom) GTA LiDAR terrain model (Range 301)

" Geographic Information System:
A system of hardware and software for storing spatially referenced information in a database for use in mapping, spatial analysis, facility management and planning"
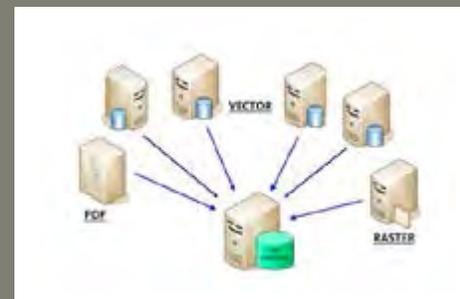
Data model:
Layered Model of Real World
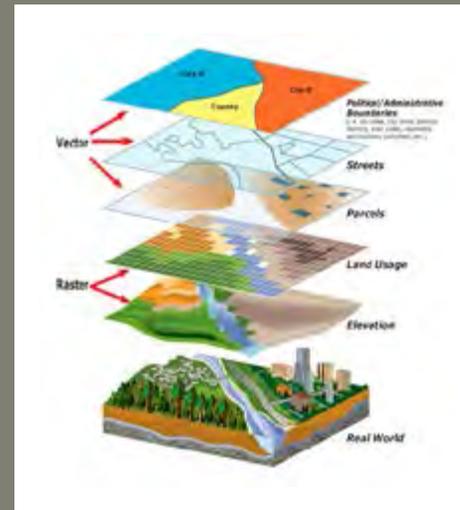
USAREUR Geodatabase SDSFIE 3.1

Data store:
Central, Standardized Multi-User Access

USAREUR SRP Enterprise GIS

USAREUR SRP installation GIS data is stored and managed in a series of 29 separate Geodatabases, hosted inside a single Oracle database instance. Connections to the enterprise database are managed via Esri ArcGIS Server 10.3.1.

All data is projected to UTM WGS84 projection, and maintained according to the Spatial Data Standard for Facilities, Infrastructure and Environment (SDSFIE) database format.
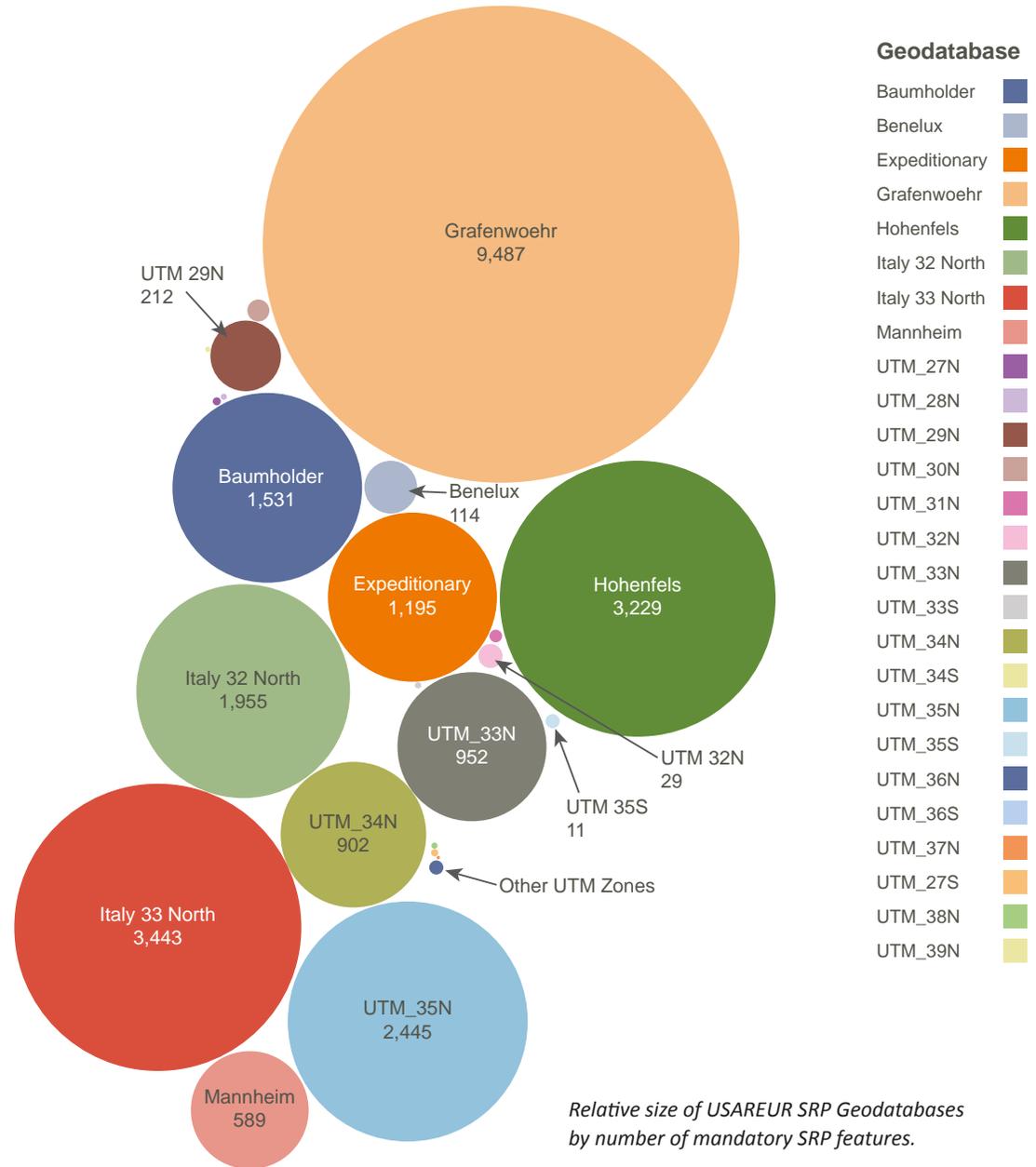
The GIS analysts connect to the Geodatabases using ArcGIS Server connections. ArcGIS Server allows multiple editors to work on versions of the same dataset, which reduces data duplication and allows edits to be reviewed and conflicts reconciled before changes are posted to the live version of the data.

This system also ensures all users are connecting to the single, most authoritative data source rather than using multiple copies of data stored on separate machines.

Access to the USAREUR SRP GIS databases is possible for any ArcGIS users on the EUR.mil network.

UTM Zones in USAREUR SRP area of responsibility

Geodatabase

Baumholder	
Benelux	
Expeditionary	
Grafenwoehr	
Hohenfels	
Italy 32 North	
Italy 33 North	
Mannheim	
UTM_27N	
UTM_28N	
UTM_29N	
UTM_30N	
UTM_31N	
UTM_32N	
UTM_33N	
UTM_33S	
UTM_34N	
UTM_34S	
UTM_35N	
UTM_35S	
UTM_36N	
UTM_36S	
UTM_37N	
UTM_27S	
UTM_38N	
UTM_39N	

Grafenwoehr
9,487

UTM 29N
212

Baumholder
1,531

Benelux
114

Expeditionary
1,195

Hohenfels
3,229

Italy 32 North
1,955

UTM_33N
952

UTM 32N
29

UTM 35S
11

UTM_34N
902

Italy 33 North
3,443

Other UTM Zones

UTM_35N
2,445

Mannheim
589

Relative size of USAREUR SRP Geodatabases by number of mandatory SRP features.

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GIS Data Migration – SDSFIE 2.6 to 3.1

The Sustainable Range Program (SRP) standardizes and maintains its GIS data holdings in accordance with the SDSFIE database format.

Army installations are currently undergoing a migration from SDSFIE 2.6 to 3.1 format, which involves changes to the database feature classes and attribute field structure and naming conventions. The Office of the Chief of Staff for Installation Management (OACSIM) are managing the migration process, setting migration timelines and providing support via the Installation Geographic Information and Services (IGI&S) migration team.

During 2015 the USAREUR SRP GIS team focused on preparing databases for migration, completing data attribution in accordance with the existing FY11 SRP Quality Assurance Plans.

At this time, all USAREUR SRP GIS data layers, with the exception of Expeditionary and foreign host nation sites, have been migrated to SDSFIE 3.1 format by the IGI&S migration team. USAREUR SRP are currently working through manually migrating non-SRP layers from 2.6 to the SDSFIE Army Adaptation template database format, and migrating metadata records into the new 3.1 format.

For more information on the SRP Geospatial Data Development Strategy and Quality Assurance Plans, see https://srp2.army.mil/gis/Pages/SRPGIS-Guidance.aspx.

Table 4 - USAREUR SRP GIS SDSFIE 3.1 Migration Timelines

USAREUR SRP DATA MIGRATION GROUPS		
DATA MIGRATION GROUPS		**SRP-SUPPORTED INSTALLATIONS**
C	USAG Bavaria (includes USAG Grafenwoehr, USAG Hohenfels, and USAG Garmisch)	Grafenwoehr Training Area, Hohenfels Training Area, Amberg-Freihoelser Forst LTA, Oberdachstetten TNG Area, Katterbach Kaserne and Storck Barracks
D	USAG Rheinland-Pfalz	Smith Barracks, Breitenwald LTA, Rhine Ordnance Barracks
D	USAG Stuttgart (Germany)	Boeblingen TNG Area & Panzer Kaserne
E	USAG Vicenza (Italy)	Caserma Ederle, Del Din and Longare Comm Site
E	USAG Wiesbaden (Germany)	Wackernheim Small Arms Range, Finthen LTA, Mainz Sand Dunes LTA
E	USAG Benelux (Belgium)	Chievres Airbase and USAG Schinnen
F	U.S. Army Garrison Darmstadt (Griesheim Airfield & Messel Small Arms Range)	None – All USAG Darmstadt sites closed in 2008
F	U.S. Army Europe Expeditionary / Host Nation Sites	Novo Selo, Babadag, MK Airbase plus additional Defense Cooperation Agreement (DCA) Sites

OACSIM IGI&S SDSFIE 3.1 GEOSPATIAL DATA MIGRATION TIMELINES FOR USAREUR SRP SITES		
		SUSPENSE
GROUP		**PRE-MIGRATION**	**MIGRATION**
C	USAG Bavaria	31 Mar 2015	Apr 2015 – Aug 2015
D	USAG Rheinland-Pfalz	30 Jun 2015	Jul 2015 – Nov 2015
E	USAG Vicenza USAG Wiesbaden	30 Sep 2015	Oct 2015 – Mar 2016
F	U.S. Army Europe Expeditionary/ Host Nation Sites	31 Dec 2015	Jan 2016 – Jun 2016

4 USAREUR SRP GIS Web and Mobile Applications
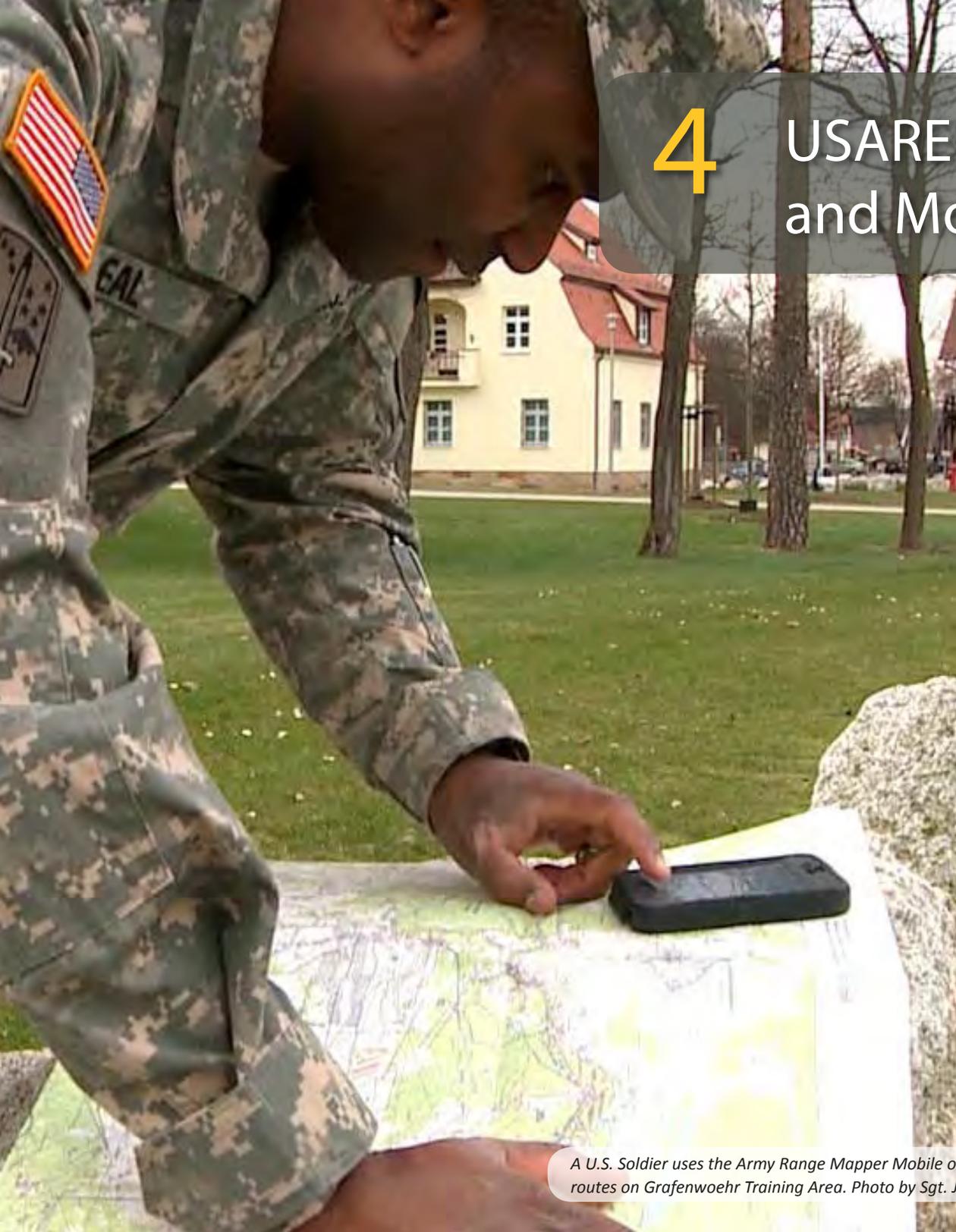
A U.S. Soldier uses the Army Range Mapper Mobile on his iPhone to reference driving routes on Grafenwoehr Training Area. Photo by Sgt. Jacqueline Fitzgerald.

ARMY RANGE MAPPER MOBILE

The Army Range Mapper Mobile app includes all USAREUR training areas, training area gate locations, Esso gas stations and standard topographic or image-based maps. It supports navigating to those hard-to-find training area gates - includes gate-to-gate routing!

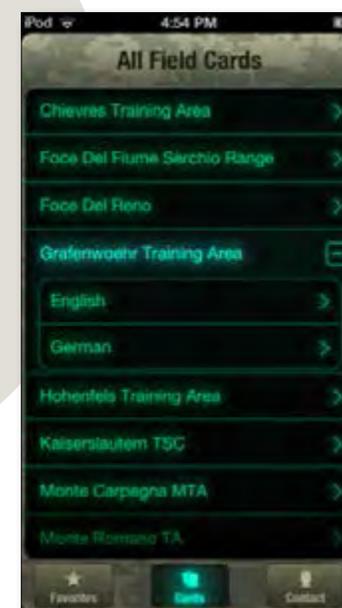Scan for Apple ARM Mobile or Android ARM Mobile:
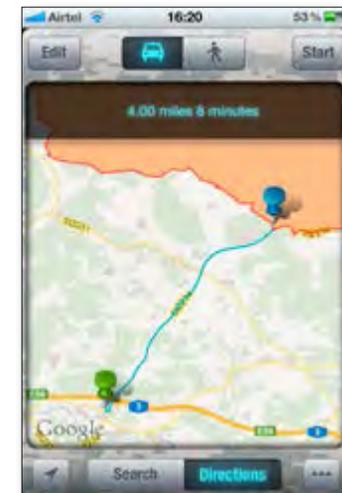
SOLDIER'S FIELD CARD APP

The SFC mobile app includes training area maps, safety information and standard guidelines for ensuring continued environmental stewardship. Sections are training area and language specific and cover the following topics: Medical Evacuation Request, Emergency Numbers and Frequencies, Spill Prevention / Response (including HAZMAT / POL), Vehicle Movement, Washrack Procedures, Training Area DOs and DON'Ts, Wildlife, Policing Training Areas, IED / UXO Report, Camouflage, Weather, Safety Risk Assessment Model, Fire Prevention and Orientation / Training Area Maps.

Scan for Apple SFC App or Android SFC App:

Table 5 - Mobile Soldier's Field Cards Available

TRAINING AREA(S)	COUNTRY	LANGUAGE
Grafenwoehr Training Area	Germany	English
Grafenwoehr Training Area	Germany	German
Ansbach TSC	Germany	English
Stuttgart TSC	Germany	English
Baumholder LTA/MTA	Germany	English
Wiesbaden TSC	Germany	English
Cellina Meduna / Juliet DZ / Frida DZ / Dandolo MOUT	Italy	English
Monte Carpegna Major Training Area	Italy	English
Monte Romano Training Area	Italy	English
Cao Malnisio Range	Italy	English
San Giorgio Urban Assault Course	Italy	English
T-Series	Italy	English
Valle Ugione and Lustrissimi	Italy	English
Babadag Training Area	Romania	English
Babadag Training Area	Romania	Romanian
Novo Selo Training Area	Bulgaria	English
Novo Selo Training Area	Bulgaria	Bulgarian
Slunj Training Area	Croatia	English

USAREUR ENVIRONMENTAL OFFICER APP

This mobile app includes valuable reference material targeting unit environmental officers, including the "You Spill, You Dig" brochure, Garrison Spill Response Plans, guidance documents, risk matrix and Material Safety Data Sheets (MSDS). The application complements the USAREUR Environmental Officer training which is designed to educate garrison and unit personnel on the impacts their jobs may have on the environment and what they are required to do to ensure that their organization stays in compliance with environmental laws and regulations, especially in regards to host nation requirements.
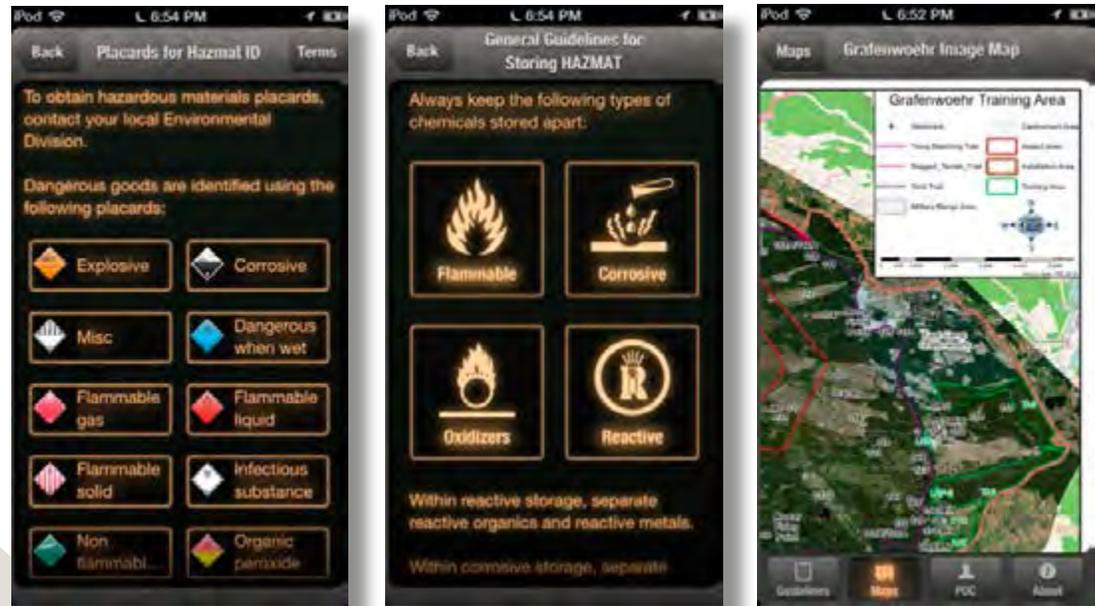
Scan for Apple EO App or Android EO App:
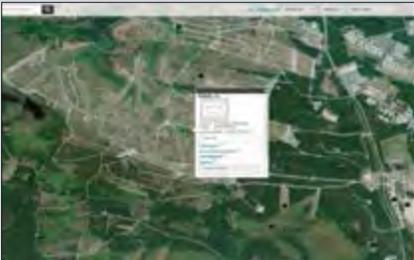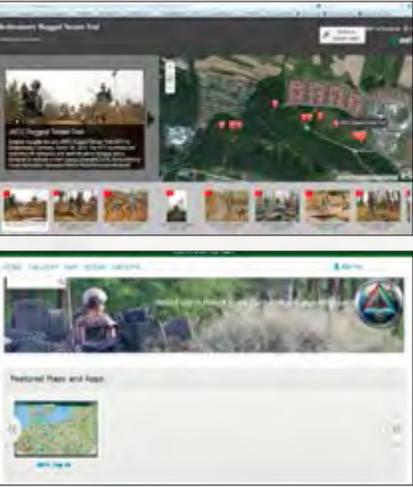
Table 6 - Number of App Downloads

	SOLDIER'S FIELD CARD	ARM MOBILE	ENVIRONMENTAL OFFICER GUIDE	TOTAL DOWNLOADS
iOS (Apple)	1777	1961	701	4439
Android	525	234	202	961

Online Geospatial Services

SERVICE	DESCRIPTION	FUNCTIONALITY
USAREUR SRP Website https://srp.usareur.army.mil	An essential tool for disseminating documentation, reports, images, maps and the latest news about the RTLP and ITAM programs in USAREUR.	Users can download all standard USAREUR SRP map products in PDF format via the resource matrix page.
Online Range Development Plan (RDP) https://srp.usareur.army.mil/Online_RDP/login.asp	The Online RDP is a web-based system for range and training area support staff to submit and track their range modernization and maintenance project requirements for each fiscal year, including funding requests, cost estimates and associated documents. The Online RDP is hosted on the USAREUR SRP website and is maintained and upgraded as required by the USAREUR SRP GIS web services administrator.	The system allows projects to be assigned priorities and enables USAREUR RTLP HQ staff to review projects and roll-up requirements from all training areas to create the USAREUR Master Range Plan (MRP).
Tap In https://armyrange-mapper.eur.army.mil/tapin	A NIPR web-mapping application similar to Google Maps. Users can search training support facility locations, view facility-specific information, download PDFs (e.g. SOPs, handbooks, access maps), and query real-time and future Range Facility Management Support System (RFMSS) scheduling data for all USAREUR training facilities. Tap In can be hosted on any CAC web portal or SharePoint site and can be scaled to satisfy unique user requirements.	• Query real-time and future RFMSS (Range Facility Management Support System) scheduling data for all USAREUR training facilities. • View location of training facilities over a variety of basemaps, both topographic and imagery. • Auto complete search function for training support facilities and training sites. • Download facility-specific electronic documents in PDF form (e.g. maps, SOPs, handbooks). • After Action Review (AAR) submission.

SERVICE	DESCRIPTION	FUNCTIONALITY
USAREUR SRP Facebook Page https://www.facebook.com/USAREUR.SRP	Follow USAREUR SRP on Facebook for news, announcements and photos of SRP events.	SRP Facebook site enables outreach and engagement with SRP customers and local training community.
USAREUR SRP Datamaster https://srp.usareur.army.mil/datamaster/t	The USAREUR SRP Datamaster application displays geospatial data content and data layer development status for all USAREUR training areas.	Vector and raster data inventories and map product listings can be queried by installation. Datamaster inventories are updated each year based on Annual Installation Data Assessments. Results are particularly useful in supporting Training Land Assessment Installation Status Reports (ISR) and are used to support the ITAM RCPMT entries.
USAREUR SRP ArcGIS Online Portal To request access to the USAREUR SRP ArcGIS Online Organizational Portal Account, email usarmy.bavaria.jmtc.list.usareur-srp@mail.mil, including your full job title and organization..	In 2013, USAREUR SRP set up a public ArcGIS online organizational account. ArcGIS Online is a web-based GIS collaboration service that greatly increases an organization's ability to provide access to and share geospatial data and maps with its users. USAREUR SRP are currently setting up a Portal for ArcGIS application, running on ArcGIS Server, which will allow ArcGIS Online Services to be deployed behind the Army Network firewall.	ArcGIS Portal web maps can be embedded in standard Microsoft Office programs such as Excel, Word and PowerPoint, providing dynamic mapping functionality inside existing applications. This is a collaborative online mapping and data sharing tool, that will enable USAREUR SRP staff to publish data and maps services within their community via a secure web-portal. Users can browse, view, create and share their own web maps by combining USAREUR SRP data with a wide range of public GIS data sources.

USAREUR SRP Web-Services Traffic

Usage of USAREUR SRP web services is closely moni-
tored and reviewed in order to ensure that services
are well used and usage is quantifiable.

Monthly "web trends" reports are generated to track
USAREUR SRP web traffic and user types. Statistics
are collected for all hits and visits on any of the web
applications running on the USAREUR SRP web serv-
er, to include the USAREUR SRP website, Army Range
Mapper, Tap In and other web applications hosted by
USAREUR SRP.

The following statistics are a summary of total
web-traffic to both the armyrangemapper.eur.army.
mil site, which hosts the Army Range Mapper and
Tap In Applications, and srp.usareur.army.mil site,
which is the root of the USAREUR SRP Website.

Individual page hits on the USAREUR SRP Website
increased by nearly 70% year on year compared to
2014. This is a result of increased deployments of
Tap In and awareness of the application throughout
USAREUR.

Monthly unique visitors peaked at 727 in January
2015, with annual visits of over 20,000, maintaining
the high levels of use seen in 2014.

Figure 1 - USAREUR SRP Websites - Monthly unique users (2008-2015)
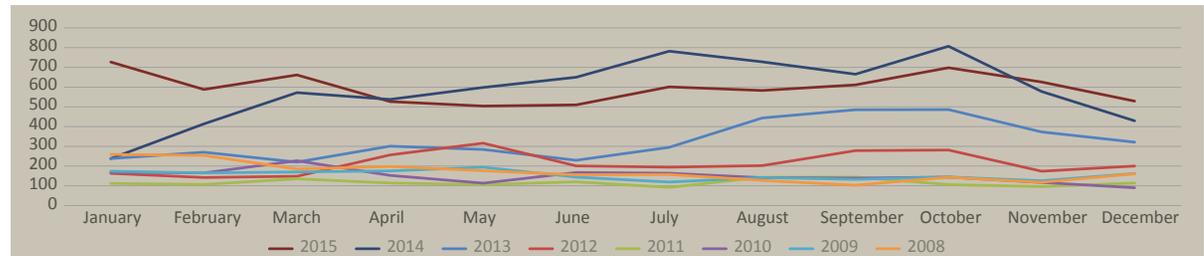
Figure 2 - USAREUR SRP Websites - Total visits (2008-2015)
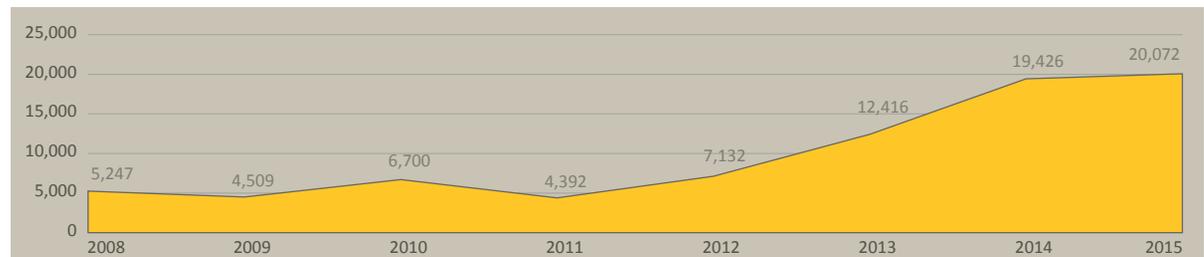
Table 7 - USAREUR SRP 2015 Summary Web-Traffic Statistics

SITES	HITS	PAGE VIEWS	VISITS	UNIQUE VISITORS	AVG. VISIT LENGTH (MINS)
armyrangemapper.eur.army.mil	1,723,361	937,060	13,763	4,367	16.16
srp.usareur.army.mil	442,114	304,494	6,309	2799	6.02
TOTAL	2,165,475	1,241,554	20,072	7,166	3,090

APPLICATIONS	HITS	PAGE VIEWS	VISITS	UNIQUE VISITORS	AVG. VISIT LENGTH (MINS)
Tap In	427,501	121,129	6,548	2,809	4.60
Tap In Sharepoint Deployments	183,346	48,770	4,067	1,962	2.99
Army Range Mapper*	54,146	16,342	795	346	3.39

* Decommissioned 31 May 2015

5 2015 Lessons Learned and
Outlook for 2016
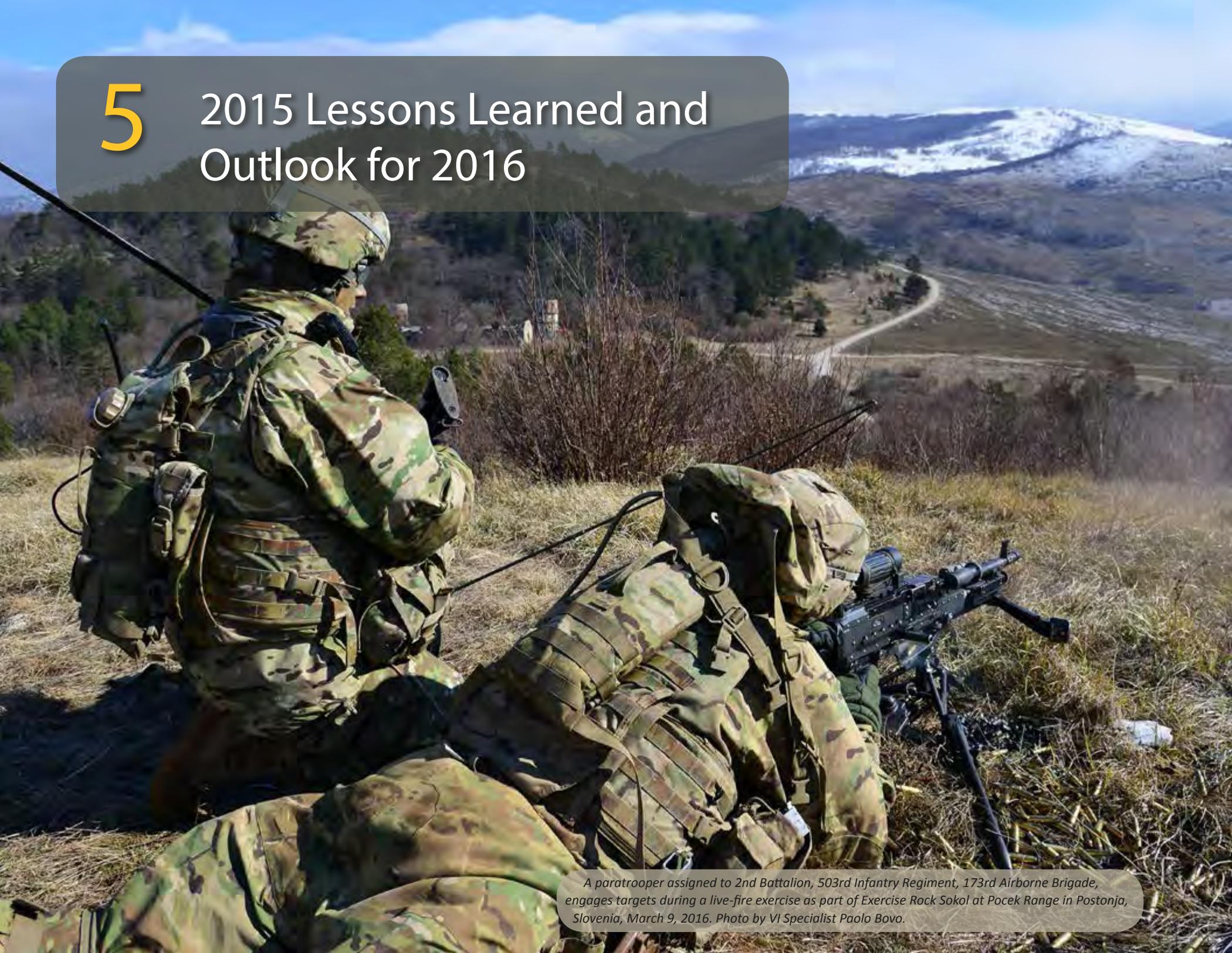
A paratrooper assigned to 2nd Battalion, 503rd Infantry Regiment, 173rd Airborne Brigade, engages targets during a live-fire exercise as part of Exercise Rock Sokol at Pocek Range in Postonja, Slovenia, March 9, 2016. Photo by VI Specialist Paolo Bovo.

The increased training intensity in Europe in 2015 was reflected by significantly increased demand on the Regional Support Center's resources and time. The team needed to remain flexible with regards changing priorities, short notice assignments, new custom mapping requirements and the need to develop high quality products for often poorly mapped parts of Europe. Staff turnover at the RSC has remained stable, resulting in time efficiencies through staff training and experience built up over a number of years.

Close relationships with the NGA Office of Geography and partnerships with foreign military geospatial personnel have proved essential in sourcing data and off-the-shelf map products for foreign sites. These partnerships ensure geospatial products are made available to U.S. units at short notice, and U.S. units are able to train with the same mapping as their foreign counterparts.

Government data sources such as the Digital Globe EVS Web-Hosting Service (https://evwhs.digitalglobe.com/), the NGA GEOINT Delivery Platform (https://websvcs.geo.nga.mil/gdp/) and the USGS EarthExplorer service (http://earthexplorer.usgs.gov/) have proved invaluable in accessing critical datasets for training planning and range safety and construction projects.

Greater demand for foreign training area maps has lead USAREUR SRP to seek alternative methods for supplying bulk hard copy mapping to U.S. units. Through coordination with the NGA, USAREUR are working to have National Stock Numbers (NSN)

assigned to foreign training area maps so that they can be ordered via the Defense Logistics Agency (DLA) supply chain. This will move responsibility for bulk print production and distribution away from USAREUR SRP. NSN numbers have been assigned to several USAREUR SRP Soldier's Field Cards, with key foreign training areas to be added in the near future.

The Tap In web-mapping application has become a significant training asset in Europe, considering the rapidly increasing list of training locations, and is particularly useful for informing USAREURs CONUS based rotational forces about training opportunities in Europe

Improved data publication workflow introduced in 2015 has enabled the Tap In geodatabase to be refreshed more frequently. Plans for expansion of Tap In access are in place, including hosting the application in a military cloud infrastructure, enabling U.S. DoD .mil network access, and publishing a foreign disclosure approved version of Tap In on the NATO BICES network.

Significant effort has been put towards publicizing Tap In to units, including Company Commander Courses, flyers, briefings at the NATO School and other events. Continued outreach effort is required in order to maintain awareness of the service. Tap In is currently deployed in 22 unit Sharepoint sites, however only 7 are routinely active. Coordination with ever changing Sharepoint administrators to maintain the profile of Tap In is a priority going forward.

Looking ahead, USAREUR SRP does not see a reduction in training intensity and demand for geospatial products in the short-term. Basic data layers for Atlantic Resolve locations have now largely been acquired, however the focus is now on developing range infrastructure information as U.S. funded range projects are underway.

Transfer of responsibility for map reproduction and distribution services from USAREUR SRP to the Defense Logistics Agency (DLA) is a key objective for USAREUR SRP in 2016, and will enable to program to focus more on acquiring, managing and standardizing data rather than handling bulk mapping orders and reproduction requests.

The introduction of new collaborative GIS technology such as ESRI Portal for ArcGIS, and the deployment of Tap In in a secure military cloud environment, to enable wider access to USAREUR SRP web-mapping services are major goals for the program in 2016.

2016 Outlook Summary

GIS DATA ACQUISITION

- USAREUR SRP/ITAM are investing in quad-copter drone technology to acquire high resolution aerial imagery and video in order to monitor and record changing land conditions at USAREUR training areas.
- Aerial Imagery and LIDAR data acquisition over Hohenfels Training Area (Spring 2016)
- Coordination with European nation partners and NGA over acquisition of civilian and military topographic data, vectors and imagery over multinational training areas.

DATABASE DEVELOPMENT AND STANDARDIZATION

- Completion of SDSFIE Data Migration for all USAREUR SRP GIS data layers from SDSFIE 2.6 to 3.1 format

ENTERPRISE GIS

- Deployment of ArcGIS Server in a secure military cloud environment
- Expansion of access to USAREUR SRP ArcGIS Server Geodatabases
- Potential hosting of IMCOME-Europe GIS Data
- Database Development and Standardization
- Completion of SDSFIE Data Migration for all USAREUR SRP GIS data layers from SDSFIE 2.6 to 3.1 format

WEB AND MOBILE SERVICES

- Portal for ArcGIS deployment
- Deployment of Tap In in a military cloud environment (.mil wide access)
- Coordination and deployment of Tap In content to NATO audiences
- Development of online map layout and print functionality
- Update and refinement of USAREUR SRP mobile apps
- TSAE Training Support Handbook App deployment

EVENTS

- HQDA SRP GIS Working Group Meeting – 26 February 2016
- USAREUR SRP/IMCOM Europe GIS User Working Group Meeting – March 14-15 2016
- USAREUR SRP Workshop – 18-20 April 2016
- HQDA ITAM Workshop – 10-13 May 2016
- ESRI EUCOM/AFRICOM Defense User Working Group – June 2016
- Installation GIS Working Group Meetings – throughout year.

GIS PRODUCTS AND SERVICES

- Completion of the 1:25,000 scale MilGeo Maps for U.S. installations in Germany in partnership with the Bundeswehr GeoInformation Center
- ITAM Viewer DVD set update – May 2016
- Updated Soldier's Field Cards for U.S. and multinational locations.

The DJI Phantom 4 quad-copter drone, capable of flying programmed flight paths using GPS capturing high resolution aerial imagery to track changing land conditions over USAREUR Training Areas.

Reviewing the GTA 1:25,000 Military Installation Map updates at the Bundeswehr Geo-Information Center (BGIC)

GPS Field Survey, Adazi, Latvia

USAREUR SRP would like to thank our USAREUR, JMTC, TSAE and Garrison colleagues and customers; external coordination partners at the Bundeswehr, Bundesforst, NGA and other agencies; SRP Geospatial Support Center; and HQDA SRP management for your continued support and cooperation.

In partnership with these organizations, we hope to continue to improve upon the levels of support, availability and functionality of USAREUR SRP products and services over the coming year.

Appendix A - Acronyms and Abbreviations

AAR	After Action Review
AFRICOM	U.S. African Command
AOR	Area Of Responsibility
ArcSDE	Esri Arc Spatial Database Engine
ARM	Army Range Mapper
BCTC	Battle Command Training Center
BGIC	Bundeswehr Geo-Information Center
BMP	Best Management Practice
BRAC	Base Realignment And Closure
BSAST	Black Sea Area Support Team
CAC	Common Access Card
CIP	Common Installation Picture
CJTF	Combined Joint Task Force
CNC	Computer Numerical Control
COP	Combat Outpost
CPQC	Combat Pistol Qualification Course
DA	Department of Army
DAMO-TRS	Department of the Army Assistant Chief of Staff for Installation Management - Training (G-3/5/7 Sustainable Range Program)
DG	Digital Global
DGI	Defense Geospatial Intelligence
DISE	Deployable Instrumentation Systems Europe
DLA	Defense Logistics Agency
DoD	Department of Defense
DPW	Directorate of Public Works
DRF	Data Request Form
DSM	Digital Surface Model
DTM	Digital Terrain Model
DUSDI&E	Deputy Under Secretary of Defense Installations & Environment
DVOF	Digital Vertical Obstructions File
DZ	Drop Zone
ERI	European Reassurance Initiative
ESQD	Explosives Safety Quantity Distance
ETSD	Expeditionary Training Support Division
EUCOM	United States European Command
FARP	Forward Arming and Refueling Point
FDO	Foreign Disclosure Office
FOS	Forward Operating Site
FY	Fiscal Year
GIS	Geographic Information System
GPS	Global Positioning System
GSC	Geospatial Support Center
GTA	Grafenwoehr Training Area
HAZMAT	Hazardous Materials
HE	High Explosive
HQ	Headquarters
HQDA	Headquarters, Department of the Army

HQIIS	Headquarters Installation Information System
HTA	Hohenfels Training Area
60th GPC	60th Engineer Geospatial Planning Cell
7A JMTC	7th U.S. Army Joint Multinational Training Command
IED	Improvised Explosive Device
IGI&S	Installation Geospatial Information and Services
IIS7	Internet Information Server 7.0
IMCOM	Installation Management Command
iOS	Apple's iPhone operating system
ISAF	International Security Assistance Force
ISR	Installation Status Report
IT	Information Technology
ITAM	Integrated Training Area Management
JFOS	Joint Forward Operating Site
JMRC	Joint Multinational Readiness Center
JMTC	Joint Multinational Training Command
LiDAR	Light Detection And Ranging
LRAM	Land Rehabilitation and Maintenance
LTA	Local Training Area
LVA-RP	Landesamt für Vermessung und Geobasisinformation Rheinland-Pfalz
MEDEVAC	Medical Evacuation
MET	MRAP Egress Trainer
MGRS	Military Grid Reference System
MilGeo	Militärisches Geowesen
MIM	Military Installation Map
MoD	Ministry of Defense
MP	Military Police
MRAP	Mine-Resistant Ambush Protected vehicle
MRP	Master Range Plan
MSDS	Material Safety Data Sheet
MSR	Monthly Status Report
MTA	Major Training Area
MTC	Mission Training Complex
MTLR Map	Military Training Land Requirements Map
NATO	North Atlantic Treaty Organization
NCO	Non-Commissioned Officer
NGA	National Geospatial-Intelligence Agency
NIPR	Non-classified Internet Protocol (IP) Router
NSG	National System for Geospatial Intelligence
NSN	National Stock Number
OACSIM	Office of the Assistant Chief of Staff for Installation Management
OAR	Operation Atlantic Resolve
ODCSENG	Office of the Deputy Chief of Staff, Engineer
OE	Operational Environment
POC	Point Of Contact
POL	Petroleum, Oil and Lubricants
QAP	Quality Assurance Plan

QAQC	Quality Assurance Quality Control
QCR	Quality Control Report
QIPR	Quarterly In-Progress Report
RAF	Regionally Aligned Forces
RAT	Reconfigured Agricultural Terrain
RDBMS	Relational Database Management System
RDP	Range Development Plan
RFMSS	Range Facility Management Support System
RMTK	Range Managers Toolkit
RRM	Raised Relief Map
RSC	Regional Support Center
RTLA	Range and Training Land Assessment
RTLP	Range and Training Land Program
RTSD	Regional Training Support Division
SDSFIE	Spatial Data Standard for Facilities, Infrastructure and Environment
SDZ	Surface Danger Zone
SFC	Soldier's Field Card
SIGACTS	Significant Actions
SOP	Standard Operating Procedure
SRA	Sustainable Range Awareness
SRP	Sustainable Range Program
STANAG	Standardization Agreement
STIG	Security Technical Implementation Guide
STL	Stereolithographic
TA	Training Area
TADSS	Training Aids, Devices, Simulators and Simulations
TAPC	Training Aids Production Center
TCM-L	TRADOC Capability Manager - Live
TCT	Traveling Contact Team
TF-E	Task Force - East
TRADOC	Training and Doctrine Command
TRI	Training Requirements Integration
TSAE	Training Support Activities, Europe
TSC	Training Support Center
TSS	Training Support System
UAC	Urban Assault Course
UAV	Unmanned Aerial Vehicle
UID	Unique Identification Number
UO	Urban Operations
USAFE	U.S. Air Force, Europe
USAG	U.S. Army Garrison
USAREUR	U.S. Army Europe
UTM	Universal Transverse Mercator
UXO	Unexploded Ordnance
VIOS	Visual Information Ordering Site
VTP	Virtual Training Program

For more information about the Sustainable Range Program, please visit the USAREUR SRP webpage: https://srp.usareur.army.mil or contact us at: usarmy.bavaria.jmtc.list.usareur-srp@mail.mil

USAREUR SUSTAINABLE RANGE PROGRAM
GEOGRAPHIC INFORMATION SYSTEM
REGIONAL SUPPORT CENTER

GERMAN ADDRESS

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