U.S.ARMY
EUROPE

GEOGRAPHIC INFORMATION SYSTEM

2016 ANNUAL REPORT

USAREUR SUSTAINABLE RANGE PROGRAM

Cover photo:
U.S. Soldier assigned to K Troop,
3rd Squadron, 2nd Cavalry Regiment
(2CR), runs during a team movement
exercise at the Drawsko Pomorskie
training area, Poland, Feb. 10, 2016.
(U.S. Army photo by Spc. Elliott Banks)

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 2016 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 2016.

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1 USAREUR SRP GIS

A Lithuanian soldier uses a protractor for proper grid coordinates as part of the Call for Fire event during the European Best Sniper Squad Competition at the 7th Army Training Command's Grafenwoehr training area Germany, Oct. 24, 2016. (U.S. Army photo by Spc. Sara Stalvey)

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 Soldier's 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 RSC at Grafenwoehr Training Area

Implementation

In USAREUR, the GIS component of the Sustainable Range Program is implemented via two support structures. Firstly, the Regional Support Center (RSC), located at Grafenwoehr Training Area, provides centralized support and management for SRP GIS efforts in USAREUR. Secondly, the SRP GIS coordinators at Grafenwoehr and 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. Range modernization integrates three primary considerations - mission support, environmental stewardship, and economic feasibility. 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) maneuver training;
(*bottom*) open maneuver area maintainance.

SRP Regional Support Center (RSC)

The RSC team, located at HQ Training Support Activity Europe at Grafenwoehr Training Area and JMRC Hohenfels, are each responsible for defined geographic areas in order to build subject matter expertise with the training areas, in that footprint, and also to develop working relationships with local GIS data managers and Government organizations in those countries.
The RSC GIS Analysts have primary and secondary areas of responsibility covering U.S. Garrison sites and multinational training locations. The RSC team collectively manage range and training area data for 476 training sites and over 800 training facilities and ranges. Raster Imagery and Topographic map data are routinely acquired and updated for these sites, as well as LIDAR and DTED elevation data for major training areas.

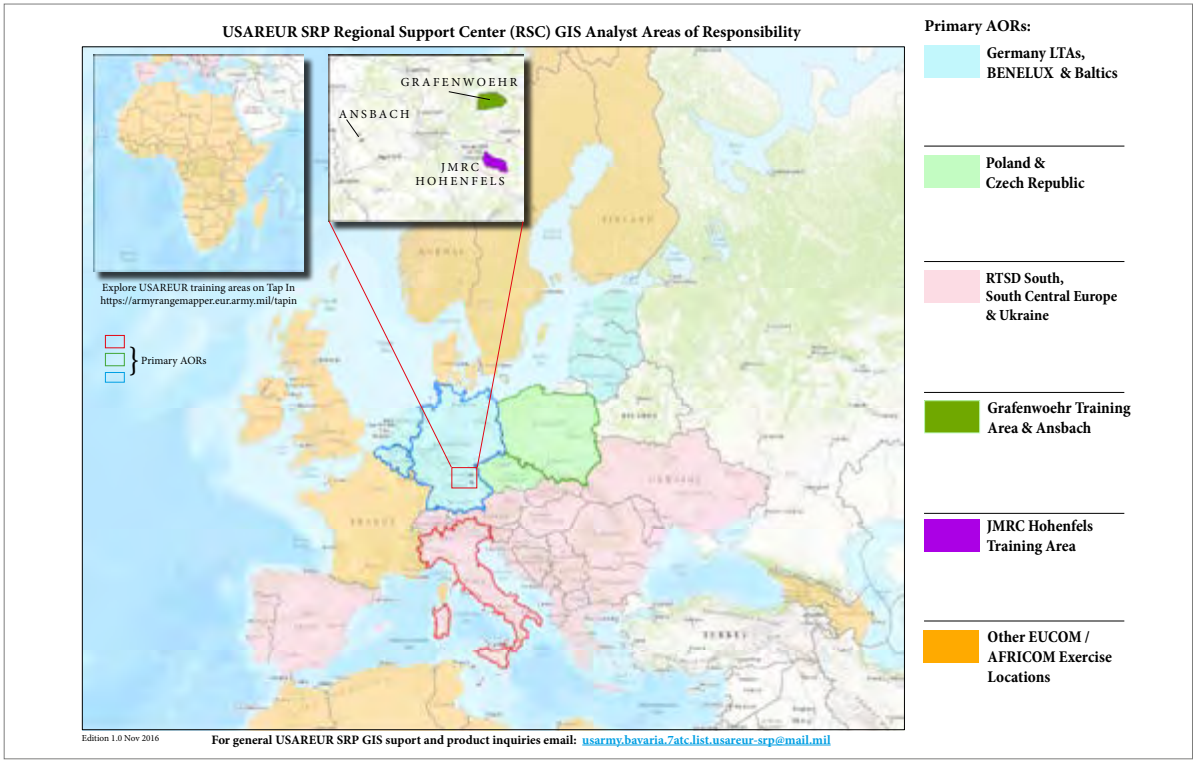
The RSC team develop a range of hard copy and digital products for direct soldier support. Hard copy topographic map production is coordinated with the Defense Logistics Agency and commercial printers. In 2016 the RSC coordinated production of over 24,000 standard hard copy training area maps. The RSC have developed series of Soldier's Field Card (SFC) products containing maps and training area specific safety, MEDEVAC and environmental protection information, printed on durable material. To date 40 Soldier's Field Cards have been produced, 11 of which were created or updated and 26,000 printed during 2016.

In addition to traditional hard copy products the RSC also provide content for the ITAM Viewer desktop application. The ITAM Viewer is a set of 5 disks containing Army approved desktop mapping software and vector and raster data for all USAREUR training areas. This disk set was updated in April 2016 and 1,500 copies distributed throughout USAREUR.

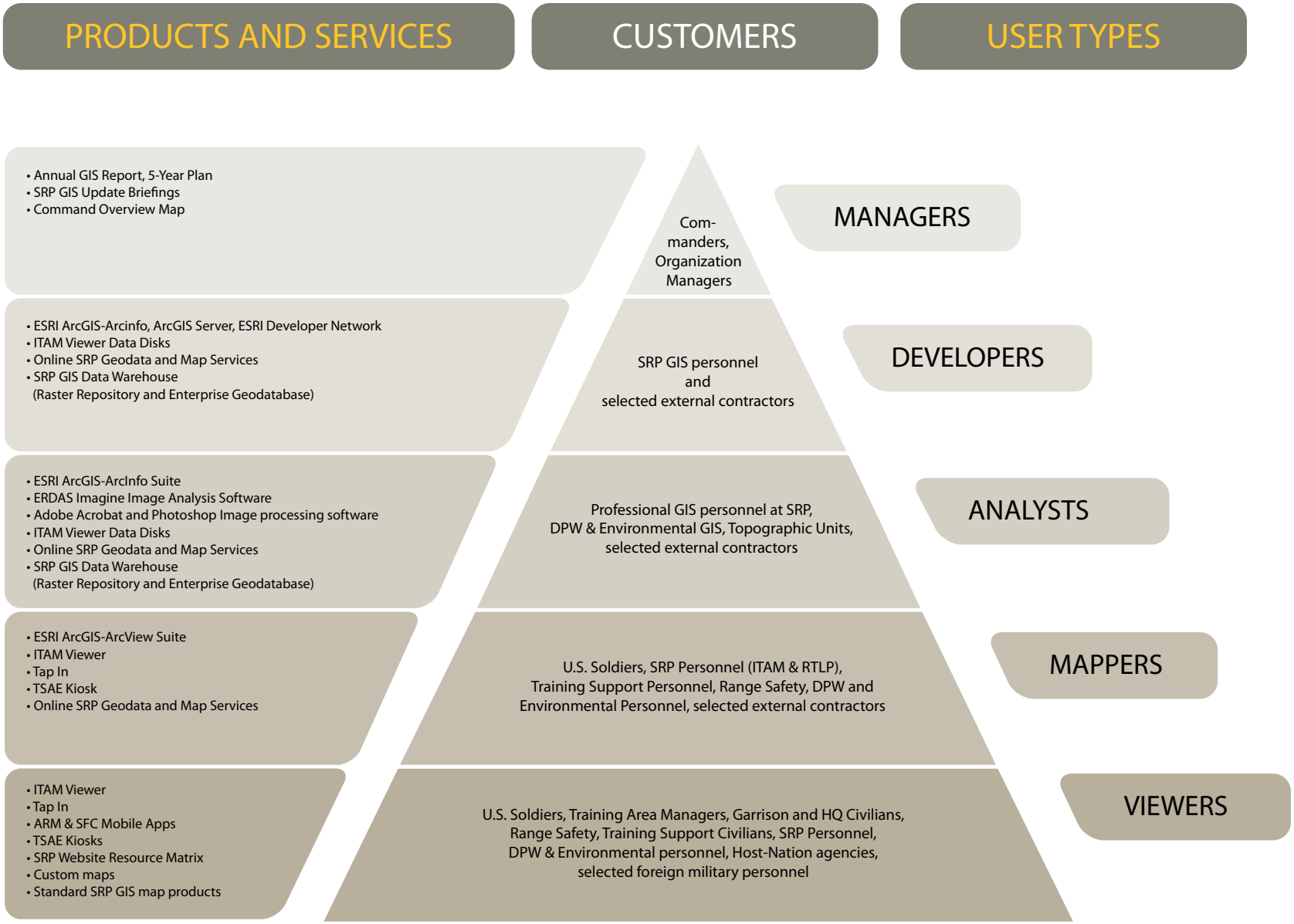
USAREUR SRP GIS data is also published to the Tap In web application – a "google maps" style web-mapping tool to enable exploration and discovery of training areas and training capabilities in the USAREUR Theater.
https://armyrangemapper.eur.army.mil/Tap In

USAREUR ITAM have a number of mobile applications available on the Apple iTunes and Google Play App stores, such as the mobile Soldier's Field Card App, which provide another method for getting the data into the hands of the soldier.

Through GIS data publication via these traditional, desktop, web and mobile media solutions the RSC ensures maximum availability of its data holdings and maximum return on Army investment in data acquisition and development funding.



USAREUR SRP GIS Customer Support Pyramid



2 2016 in Review

Latvian Army Soldiers use a map to check their position during exercise Saber Junction 15 at the U.S. Army's Joint Multinational Readiness Center in Hohenfels, Germany, April 23, 2015. (U.S. Army photo by Visual Information Specialist Markus Rauchenberger)

Support for Operation Atlantic Resolve

USAREUR home stationed units such as the 173rd Infantry and 2nd Cavalry Regiment, 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 all participated in ongoing Atlantic Resolve exercises as well as other multinational exercises across Europe throughout 2016.

These units conducted large scale multinational exercises at Grafenwoehr and Hohenfels, including the Combined Resolve VII series, which involved more than 3,500 participants from Armenia, Bosnia-Herzegovina, Belgium, Bulgaria, France, Hungary, Macedonia, Moldova, Montenegro, Norway, Poland, Romania, Serbia, Slovenia, Ukraine, and the United States).

http://www.eur.army.mil/7ATC/CombinedResolve.html

Atlantic Resolve is a demonstration of continued U.S. commitment to collective security through a series of actions designed to reassure NATO allies and partners of America's dedication to enduring peace and stability in the region in light of the Russian intervention in Ukraine.

Source: http://www.eur.army.mil/atlanticresolve

In addition to Atlantic Resolve, USAREUR Units also participated in the Rapid Trident and Fearless Guardian field exercises at Yavoriv, Ukraine, and maintained continuous presence in Ukraine providing peace keeping training for Ukrainian units. The Joint Multinational Training Group – Ukraine (JMTG-U) has been established and is receiving direct GIS support from the USAREUR SRP Regional Support Center.

http://www.eur.army.mil/jmtg-u/

The major multinational exercise in 2016 was Anakonda in Poland. This event included 31,000 Soldier's from 24 NATO countries and partner nations (including Albania, Bulgaria, Canada, Croatia, Czech Republic, Estonia, Finland, Germany, Hungary, Latvia, Lithuania, Macedonia, Poland, Romania, Slovakia, Slovenia, Spain, Sweden, Turkey, the United Kingdom and the United States)

Anakonda 2016 took place across 14 different training locations in Poland. USAREUR SRP provided 18,000 Soldier's Field Cards and 20,000 topographic maps in support of this exercise.

http://www.eur.army.mil/anakonda/

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

http://www.eur.army.mil/exercises/

Traditional home station straining 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 the host nation Ministry of Defense and National Geospatial Intelligence Agency 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 for Rehearsal of Concept (ROC) drills and other large format planning products.

America's Continued Commitment to
EUROPEAN SECURITY
Operation Atlantic Resolve

2016 USAREUR SRP GIS Support Statistics:

26,000 Soldier's Field Cards Printed for distribution throughout USAREUR

24,900 Military Training Area Maps printed to support training in USAREUR

1,490 ITAM Viewer DVD sets distributed throughout USAREUR

597 GIS / Map data requests submitted, processed and completed

219 Custom Maps Authored in response to customer requests

118 Technical GIS support requests completed by the USAREUR SRP GIS Team

34 New aerial, satellite and topographic imagery datasets acquired by the USAREUR SRP GIS team

24 Installation, Industry and Training Events attended or hosted by the USAREUR SRP GIS Team

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

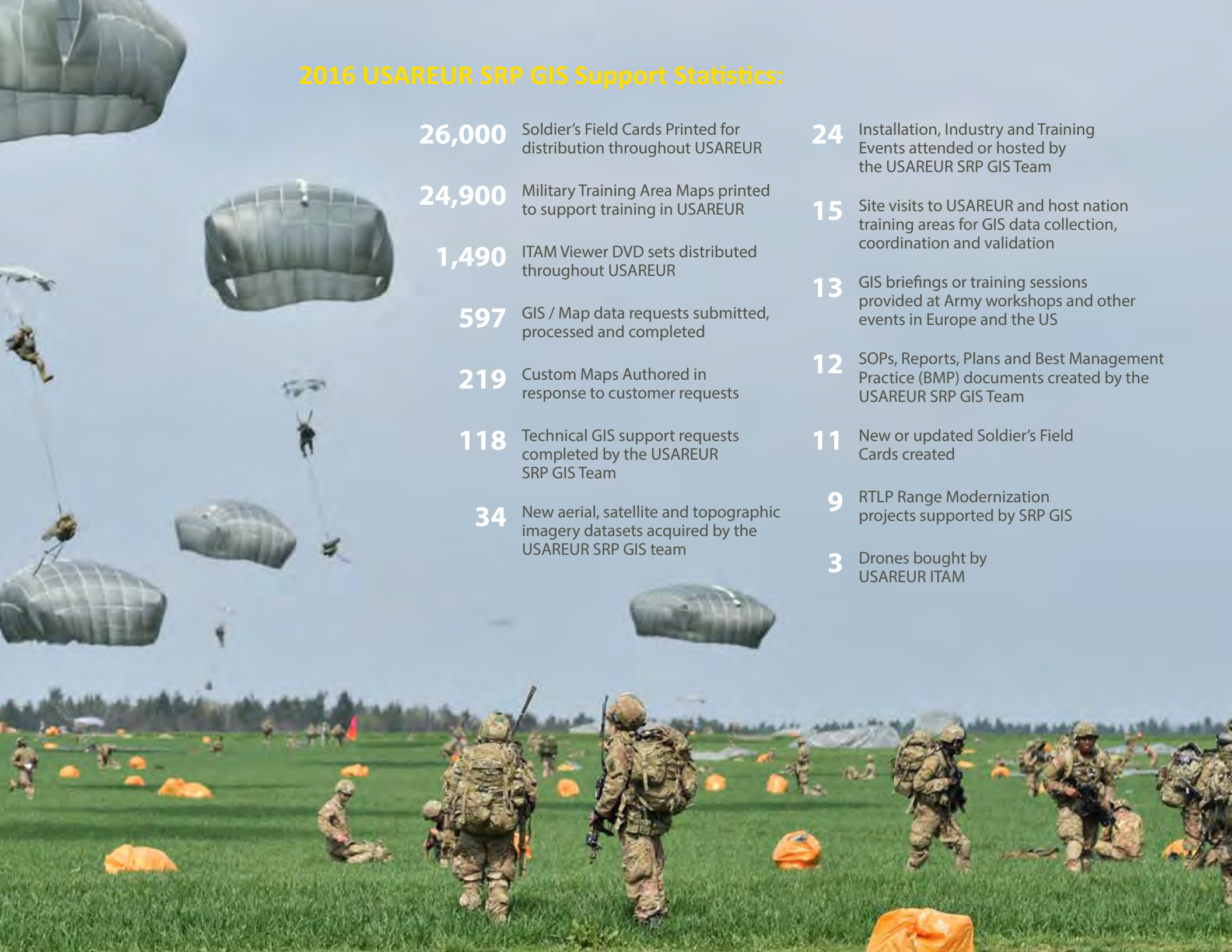
13 GIS briefings or training sessions provided at Army workshops and other events in Europe and the US

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

11 New or updated Soldier's Field Cards created

9 RTLP Range Modernization projects supported by SRP GIS

3 Drones bought by USAREUR ITAM



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 Hungary, Spain, Latvia, Ukraine and Italy during 2016, 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. Site visits to Portugal, Romania, Georgia, Poland and Israel are scheduled for 2017.

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

Coordination with the 60th Engineers Geospatial Planning Cell (GPC) and other geospatial units in Europe has been extremely useful in sharing the workload of developing regional map products, sharing data and combining data acquisition requests to the NGA.

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.

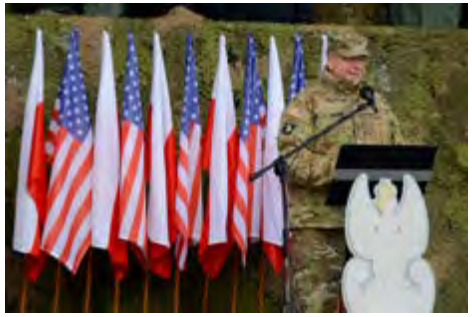
ERI funded activities:

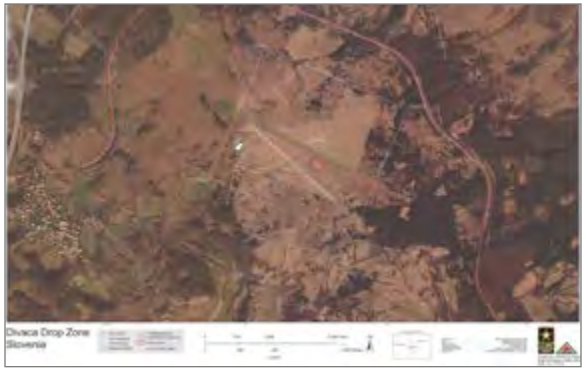
1. Continued increased U.S. military presence in Europe;
2. Additional bilateral and multinational exercises;
3. Improved infrastructure to allow for greater responsiveness
4. Enhanced pre-positioning of U.S. equipment in Europe
5. Intensified effort to build partner capacity for newer NATO members and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

The ERI program includes federal funding 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, developing plans for range modernization, siting and construction projects.

(Top) U.S. Army Lt. Gen. Ben Hodges, Commanding General of U.S. Army Europe addresses U.S. Soldier's, assigned to the 3rd Armored Brigade Combat Team, 4th Infantry Division, and Polish Soldier's during a welcome ceremony at Karliki range, Zagan, Poland, Jan. 30, 2017. (U.S. Army photo by Spc. Emily Houdershieldt)

(Bottom) U.S. tanks and troops convoy into Poland in support of Exercise Anakonda 2016.





Custom Maps and Technical Support

The RSC handled 597 GIS data and map requests during 2016. This was a 10% increase over the previous year, largely due to the Regionally Aligned Force (RAF) units rotating into Europe and requiring local products for Germany and Eastern Europe, this demand was also due to the large number of new training areas in Eastern Europe being utilized by the U.S. for exercises, requiring new map products to be sourced or developed.

Soldier's Field Cards

Soldier's Field Cards containing maps, environmental, safety and local training support information have been developed by USAREUR SRP for 44 individual training areas throughout Europe. The RSC team have worked closely with foreign environmental protection specialists at the host nation training areas to acquire environmental protection information, restrictions to training, local area maps and military training facility locations.

A standard SFC template has been developed in Adobe InDesign to enable rapid development of new cards. Standard turnaround for production of a new field card product is 4 to 6 weeks.

The complete set of USAREUR SRP field cards have been published to the Central Army Registry (CAR) as Graphic Training Aids (GTA) to make them available Army-wide.

All USAREUR Soldier's Field Cards are now available for download on the Central Army Registry (CAR). Go to http://www.train.army.mil , sign into the CAR and search for "Soldier's Field Cards".

Standard Training Area Map Production

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 have become the main supplier of foreign training area maps to U.S. units in Europe, funding printing and distribution of over 24,000 training area maps during 2016. A number of the foreign training area map products have been submitted to NGA for inclusion in the Defense Logistics Agency (DLA) Map Catalog.

Soldier's Field Cards available from USAREUR SRP

Finland
Norway
Sweden
Klooga
Tapa
Estonia
Adazi
Latvia
Denmark
Lithuania
Pabrade
Gaiziunu
Drawsko Pomorskie
Orzysz
Belarus
United Kingdom
Ireland
Germany
Torun
Wedrzyn
Poland
Zagan
Nowa Deba
Chievres Airbase
Grafenwoehr
JMRC
Hohenfels
Yavoriv
Baumholder
Breitenwald
Czech Republic
Ukraine
Boeblingen
Oberdachstetten
Slovakia
Cellina Meduna Lta
France
Moldova
Varpalota
San Giorgio
Hungary
Romania
T Series
Cao Malnisio Range
Slovenia
Pocek
Divaca Dz
Cincu
Croatia
Asiago Dz
Slunj
Babadag
Foce Fiume Serchio
Monte Carpegna
Valle
Ugione Lta
Italy
Bulgaria
Novo Selo
Monte Romano
Persano
Spain
Chinchilla
Portugal
Greece
Turkey
Tunisia

Major Training Area GIS Support

2016 Aerial Imagery Collection and Acquisition of 2015 Lidar Elevation Data

In 2016 JMRC ITAM funded the collection of new aerial imagery over the Hohenfels Training Area. This imagery was collected in June 2016 with the finished imagery being 20cm resolution.

JMRC ITAM also contracted the purchase of 2015 Lidar from the Bayerische-Vermessungsverwaltung. This data was processed to create 50cm digital terrain models (bare earth) and Digital Surface Models (showing vegetation canopy).

The two new data layers will be invaluable in supporting ITAM analysis projects and tasking over the next 3 years.

JMRC Hohenfels Off-Limits Study

In 2016 ITAM funded a survey inspection of the training area to identify all man-made and natural obstructions which were limiting the availability of maneuver training area.

With this data JMRC ITAM GIS were able to provide statistical information and accurate maps classifying the training area by training area availability. From these products ITAM and the JMRC leadership are able to identify areas which can be reactivated increasing the amount of maneuver area for training.

Training Support Center (TSC) Support

The RSC team make regular visits 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.

During 2016 the team carried out site surveys and GIS coordination visits to Baumholder, Kaiserslautern, Wiesbaden and Stuttgart local training areas, as well as supporting range recon trips to Slovenia, Spain and Italy with the Regional Training Support Division – South, based in Vicenza, Italy.

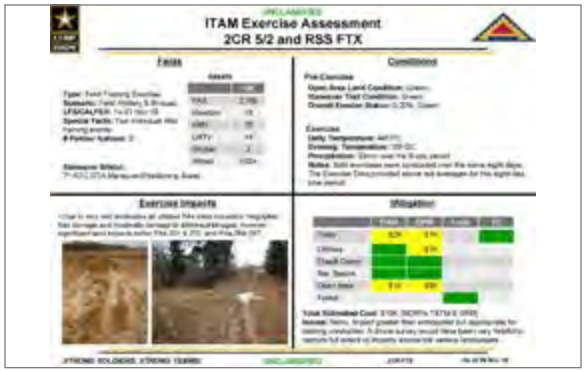
NATO Standard Oberdachtetten Training Area Map

ITAM GIS support for Oberdachstetten Local Training Area (Obd. LTA) significantly increased during 2016. An example of this was the production of the first ever NATO standard “MilGeo” map for the training area. GTA and Obd.
LTA ITAM GIS coordinated with the Bundeswehr GeoInformation Office (BGIC) to produce of the new 1:10,000 scale map (Series M84-StO-Z).

This brings Obd. LTA in-line with other, larger, training areas in the region such as Grafenwoehr and Hohenfels, and will lead to a higher awareness and utilization of the training facilities at Obd. LTA. The new map was designed, printed and distributed to Ansbach TSC and Obd. LTA Range Operations in 2016.

Oberdachstetten Installation Special Map

The existing ‘Installation Special’ map product was updated during 2016. The Oberdachstetten ‘Installation Special’ provides multiple topographic and aerial image maps in a single product, providing detail on range facilities, obstacle course and urban operations facilities along with information on the services available from the local Ansbach Training Support Center. The product design was finalized in 2016 with production to begin in 2017.



RTLA Support at Grafenwoehr and Oberdachstetten

RTLA assessments are an important aspect of guaranteeing sustainability of training.
The GTA & Obd. LTA ITAM office is putting more focus onto the quality of data collected during these assessments to improve consistency and accountability. SRP GIS provided support to the contracted RTLA assessments in 2016, assisting with Scope of Work development, and producing of a detailed data dictionary to ensure a consistent and meaningful data collection. Finally, support was provided for reviewing the delivered products and in adding relevant data to the SRP GIS database. SRP GIS also investigated how UAVs can be utilized to make RTLP assessments more efficient.

Short Take-Off and Landing Airstrip (STOL) Analysis

The Hohenfels Short Take-Off and Landing Airstrip (STOL) provides NATO units with a replicated improvised landing and take-off facility as might be encountered on operations.
Throughout 2015-16 JMRC ITAM GIS has proved significant assistance to the JMRC Master Planner and Troop Construction in preparing the STOL for usage during rotations and planning work for further improvements.

Following 2015 analysis to identify vegetation which needed to be removed to meet air safety standards, in 2016 JMRC ITAM GIS provided a maximum vegetation height map to assist the Bundesforst in retaining vegetation levels at the safe height to prevent encroachment into the air safety surface.

In 2016 JMRC ITAM GIS plotted planned expansion works over imagery to assist JMRC leadership understand planned development work. The ITAM GIS Analyst analyzed the planned extension on the south west side to identify the volume of soil which would need importing to enable the extension. With this information the JMRC Master Planner was able to provisionally cost the project in time and material.

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.

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, including over 1500 GIS data layers and 263 aerial, satellite and topographic map images.

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 3.3 DVD set in April 2016.

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. PowerPoint).

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 a GIS product or service from USAREUR SRP or for more information, contact usarmy.bavaria.7atc.list.usareur-srp@mail.mil or visit our website at https://srp.usareur.army.mil

Training and Event Support

A total of 37 training support events, conferences, workshops, training sessions or working group meetings were supported by the USAREUR SRP GIS team in 2016. These events included the monthly Company Commanders and First Sergeants (CCFS) course which provides an opportunity for new Army leaders to gain awareness of the geospatial support available to them from SRP.

The USAREUR SRP Workshop was held in April 2016 at Grafenwoehr. This event, attended by over 100 participants from the Training Support community in Europe and HQDA, was organized and hosted by USAREUR SRP. The RSC GIS team provide pre-conference planning support, coordination of conference materials, handouts, attendee packs, displays, signs and banners, support conference registration and set-up and break down. The GIS team also provided training sessions in the ITAM Viewer and Tap In applications, as well as the Range Managers Toolkit (RMTK) for ArcGIS.

GIS Data and Product Request Tracking

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

All requests are logged using Data request forms. In total 597 map requests were processed by the RSC team in 2016, and 118 technical GIS support calls were logged.

Custom maps can be requested either by walk-in 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.7atc.list.usareur-srp@mail.mil

Note:
The USAREUR SRP GIS mission is to provide mapping support for training areas and ranges.
For regional overview products, logistical, tactical and operational maps, units should contact their Brigade Geospatial Planning Cell (GPC).

For standard map products that have a National Stock Number (NSN) units should place map orders with the Defense Logistics Agency (DLA) prior to deployment or training rotation in order to receive maps in time for the exercise or operation.

USAREUR Sustainable Range Program
GIS Information Products Data Request Form

Above: USAREUR SRP GIS Product Request Form

Defense Logistics Agency (DLA) Map Orders

There are a few ways that you place orders for your mapping products. The two most common ways are to submit them electronically using WEBREQ or DOD EMALL. Orders are submitted in MILSTRIP format and are routed to DLA Mapping Customer Operations (MCO). WEBREQ is DLA's legacy system for ordering mapping products. Orders can be entered manually, but most customers use the DLA Map Catalog to build the order and then upload the text file into WEBREQ. DOD EMALL, the newer of the two systems has the ability to upload up to 10,000 items at a time and the DLA Map Catalog is available for download as mentioned above. Order tracking is available regardless of which system you use, as long as you have your document number available.

Crisis Ordering:

DLA MCO can assist with any emergency requests due to crisis situations, short-notice deployments or any other unexpected development. When requesting expedited map/chart shipments in support of emergency or contingency operations, contact MCO initially by telephone at
(804) 279-6500/DSN 695-6500
or 1-800-826-0342.

Source: http://www.dla.mil/Portals/104/Documents/Aviation/MAPPING/Newsletters/AVN_MAP_17-01.pdf

Standard USAREUR SRP map products, which are not within the DLA Map Catalog, such as Germany Garrison Installation Specials, Land Navigation maps, Soldier's Field Cards and standard off-the-shelf raised relief maps, may be ordered directly from USAREUR SRP.

Information for ordering these products may be found here: https://srp.usareur.army.mil/SRPsite/maprequest.aspx

Multinational Map Products available from DLA:

PRODUCT	NATION	SCALE	YEAR	NRN	NSN
Grafenwoehr Training Area	Germany	1:25,000	2016	M84TRZ62	7643014825294
Grafenwoehr Training Area	Germany	1:50,000	2016	M745TRZ62	7643014825196
Hohenfels Training Area	Germany	1:25,000	2016	M84TRZ63	7643014825295
Hohenfels Training Area	Germany	1:50,000	2016	M745TRZ63	7643014825199
Ansbach Training Area (Oberdachstetten)	Germany	1:25,000	2012	M845SANSBACHMIM	7643016146162
Boeblingen Training Area (Stuttgart)	Germany	1:25,000	2012	M845SSTUTTGAMIM	7643016218717
Wiesbaden Training Areas	Germany	1:25,000	2012	M845SWIESBADMIM	7643016190678
Babadag Training Area	Romania	1:50,000	2010	M705SBABADAGTAM	7643015904189
Babadag Training Area	Romania	1:50,000	2003	M706XBADABAG	7643016504578
Cincu Training Area	Romania	1:50,000	2002	M706XCINCU	7643016504579
Smardan Training Area	Romania	1:25,000	2002	M806XSMARDAN	7643016504580
Novo Selo Training Area	Bulgaria	1:25,000	2015	M804SNOVOSELTAM	7643016215624
Central Training Area of Estonia	Estonia	1:20,000	2012	M855XTAPA	7643016504574
Gaiziunu (Rukla) Training Area	Lithuania	1:25,000	2013	M851XGAIZIUNU	7643016504573
Kairiai Training Area	Lithuania	1:25,000	2002	M851XKAIRIU	7643016504575
Kazlu Ruda Training Area	Lithuania	1:25,000	2014	M851XKAZLURUDOS	7643016504576
Pabrade Training Area	Lithuania	1:25,000	2011	M851XPABRADES	7643016504577

Search for Training Facilities by Keyword
Click on training site icons to access PDF maps, scheduling calendar, field cards, capability briefs and other documentation
Scale and MGRS Grid
TRAINING SUPPORT
TST POLAND
Zoom To
Share This Feature
Map Links
Topo Map
Aerial Image Map
Command Map
Training Resources
Feedback
Links
USAREUR HQ
North Sea
Dogger Bank
English Channel
Irish Sea
Skagerrak
Gulf of Riga
Ligure Sea
Adriatic Sea
Gulf of Lions
Gulf of Venice
Corso-Ligurian Basin
UNITED KINGDOM
SCOTLAND
ENGLAND
WALES
IRELAND
ISLE OF MAN
CHANNEL ISLANDS
DENMARK
NETHERLANDS
BELGIUM
GERMANY
FRANCE
SWITZERLAND
AUSTRIA
CZECH REPUBLIC
SLOVAKIA
HUNGARY
ROMANIA
MOLDOVA
BELARUS
LITHUANIA
LATVIA
ESTONIA
SLOVENIA
CROATIA
SERBIA
BOSNIA AND HERZEGOVINA
MONTENEGRO
ALBANIA
BULGARIA
ITALY
SAN MARINO
ANDORRA
Stockholm
Copenhagen
Riga
Vilnius
Minsk
Kiev
Amsterdam
Den Haag (The Hague)
Rotterdam
Antwerp
Brussels
Luxembourg
Hamburg
Bremen
Berlin
Hannover
Dusseldorf
Leipzig
Dresden
Chemnitz
Prague
Paris
Stuttgart
Munich
Vienna
Bratislava
Budapest
Zurich
Bern
Vaduz
Lyon
Milan
Torino
Ljubljana
Zagreb
Belgrade
Sarajevo
Bucharest
Prishtina
Sofia
Skopje
Podgorica
Rome
Vatican City
San Marino
Monaco
Marseille
Toulouse
Andorra la Vella
Barcelona
Zaragoza
Bilbao
Oviedo
Nantes
Rennes
Saint Helier
Douai
Lille
Dublin (Baile Atha Cliath)
Glasgow
Edinburgh
Newcastle
Leeds
Liverpool
Manchester
Sheffield
Nottingham
Birmingham
London
Cardiff
Douglas
Pskov
Novgorod
Vitebsk
Mogilev
Brest
Lviv
Chernivtsi
Odesa
Cluj-Napoca
Debrecen
Orades
Craiova
Brasov
Galati
Varna
Skopje
Ivano-Frankivsk
Khmelnytskiy
Vinnitsa
Cherkasy
Mykolayiv
Kherson
Chisinau
Transnistria
Gulf of Riga
Lake Peipus
Kattegat
Vattern
Malaren
Hjalmaren
Vanern
Gotland
Bornholm
Oresund
Fehmarn
Rugen
Usedom
Wolin
Hel
Gdansk
Gdynia
Szczecin
Krakow
Katowice
Wroclaw
Poznan
Lodz
Warsaw
Bialystok
Lublin
Rzeszow
Tarnopol
Zhytomyr
Kyiv
Dnipro
Kharkiv
Donetsk
Luhansk
Crimea
Sevastopol
Simferopol
Kerch
Mariupol
Berdyansk
Melitopol
Kherson
Mykolayiv
Odesa
Chisinau
Transnistria
Gomel
Mogilev
Vitebsk
Smolensk
Pskov
Novgorod
Riga
Vilnius
Minsk
Kaunas
Klaipeda
Siauliai
Panevezys
Alytus
Marijampole
Utena
Ignalina
Visaginas
Zarasai
Rokiskis
Kupiskis
Anyksciai
Birzai
Pasvalys
Kedainiai
Jonava
Kaisiadorys
Trakai
Elektrenai
Druskininkai
Lazdijai
Varena
Vilkaviskis
Kalvarija
Sakiai
Jurbarkas
Taurage
Silute
Neringa
Palanga
Telsiai
Mazeikiai
Plunge
Kretinga
Skuodas
Joniskis
Pakruojis
Radviliskis
Siauliai
Panevezys
Biertan
Sighisoara
Targu Mures
Brasov
Sibiu
Alba Iulia
Deva
Hunedoara
Petrosani
Targu Jiu
Craiova
Slatina
Pitesti
Ramnicu Valcea
Targoviste
Bucharest
Ploiesti
Buzau
Focsani
Galati
Braila
Tulcea
Constanta
Mangalia
Medgidia
Slobozia
Calarasi
Giurgiu
Alexandria
Turnu Magurele
Drobeta-Turnu Severin
Orsova
Timisoara
Arad
Oradea
Satu Mare
Baia Mare
Zalau
Bistrita
Reghin
Miercurea Ciuc
Sfantu Gheorghe
Covasna
Targu Secuiesc
Buzau
Ramnicu Sarat
Focsani
Adjud
Onesti
Bacau
Roman
Piatra Neamt
Suceava
Radauti
Vatra Dornei
Gura Humorului
Campulung Moldovenesc
Falticeni
Botosani
Dorohoi
Darabani
Hirlau
Iasi
Vaslui
Barlad
Husi
Negresti
Tecuci
Galati
Braila
Tulcea
Constanta
Mangalia
Medgidia
Slobozia
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Negresti
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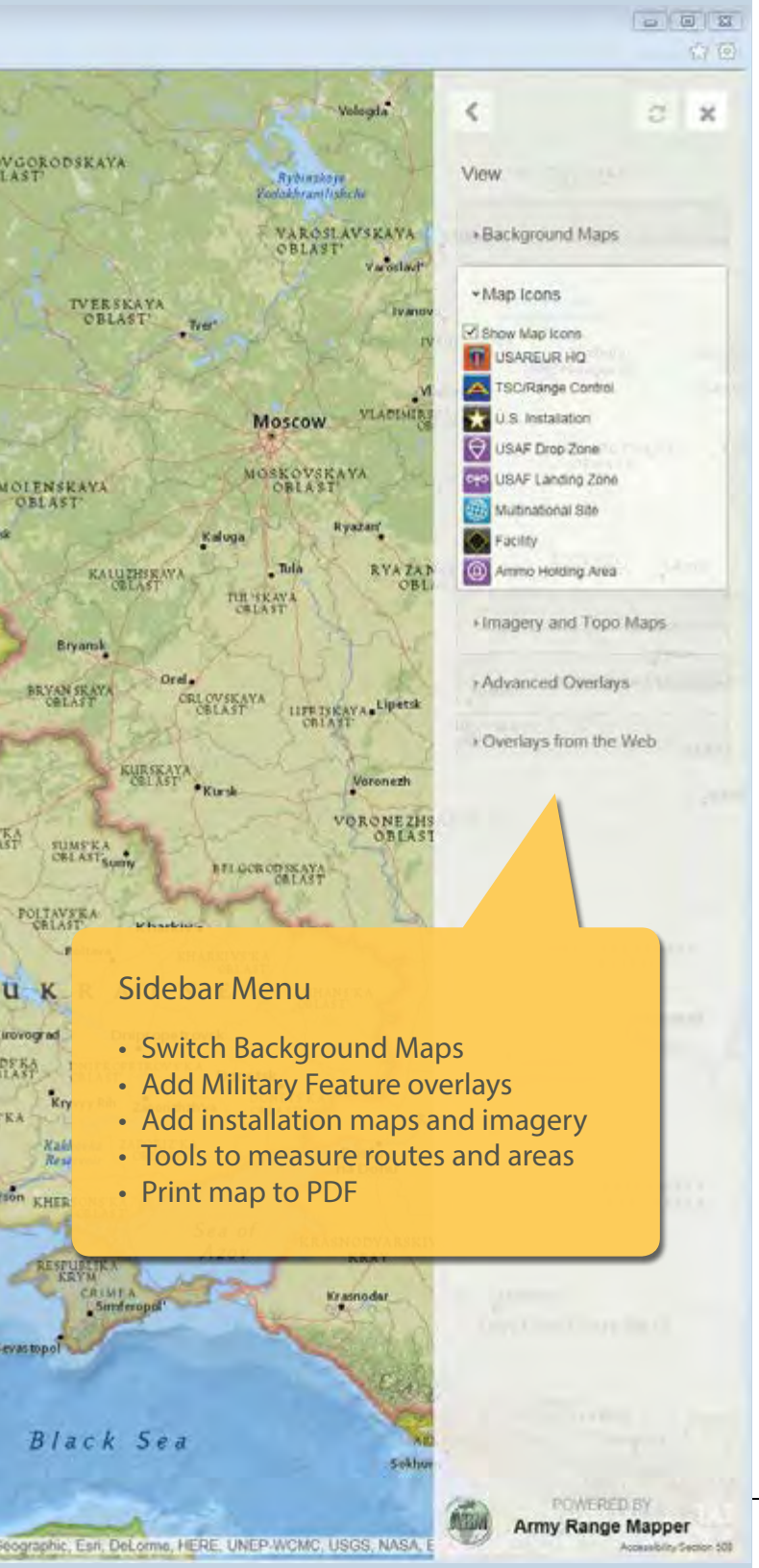


Tap In – USAREUR's training resource discovery tool

The Tap In website, a google maps style web mapping application developed by USAREUR SRP, currently has over 470 training areas, drop zones and military installations mapped. Users can search for specific facility types, training areas or ranges via a dynamic search tool.

Live range use information can be viewed via a live link to the USAREUR and Grafenwoehr Range Facility Management Support System (RFMSS).

Thematic overlays such as NATURA 2000 environmental protection areas, and basemaps from ESRI and Digital Globe can be displayed behind the training area features.

Tap In can be directly embedded in a Units Sharepoint site in order to integrate it into the daily operational planning of each member of a unit. To set up Tap In for your Sharepoint site, please contact the USAREUR SRP Web Systems administrator at: usarmy.bavaria.7atc.list.usareur-srp@mail.mil

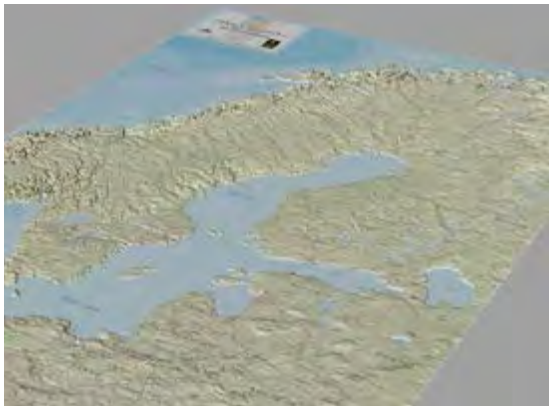
Raised Relief Maps and Terrain Boards

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

1 U.S. Soldiers with 2nd Cavalry Regiment use a large vinyl map (produced by Training Support Activity Europe's Training Aids Production Center or TAPC) at a Roc Drill for upcoming Exercise Saber Strike at the 7th Army Training Command's Grafenwoehr Training Area, Germany, April 28, 2016. (U.S. Army photo by Visual Information Specialist Markus Rauchenberger)

2 German Bundeswehr Soldiers of 4th Paratrooper Company, 31st Paratrooper Regiment, plot their objective points using a map while conducting a dismounted patrol operation during Swift Response 16 training exercise at the Hohenfels Training Area, a part of the Joint Multinational Readiness Center, in Hohenfels, Germany, Jun. 21, 2016. (U.S. Army photo by Staff Sgt. Nathaniel Allen)

3 U.S. Soldiers with 1st Battalion, 503rd Infantry Regiment, 173rd Airborne Brigade, track unit movements on a map during Exercise Allied Spirit V at the 7th Army Training Command's Hohenfels Training Area, Germany, Oct. 8, 2016. (U.S. Army photo by Markus Rauchenberger)

4 U.S. Soldiers of 1st Brigade Combat Team, 82nd Airborne Division locates a target on a map while conducting airborne operations during Swift Response 16 training exercise at the Hohenfels Training Area, a part of the Joint Multinational Readiness Center, in Hohenfels, Germany, June 15, 2016. (U.S. Army photo by Spc. Lloyd Villanueva)

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3 GIS Data Acquisition, Development and Standardization

2016 USAREUR SRP Geospatial Data Acquisition

During 2016, 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 foreign ministries of Defense, or by contract with private data providers.

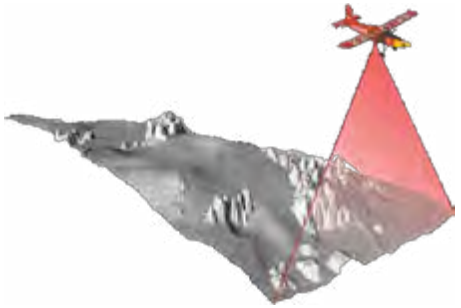
Through partnership with the NGA Office of Geography International & Military Coproduction Branch, topographic map coverage and orthorectified aerial imagery of all Major Training Areas (MTA) areas in Poland was acquired, as well as imagery and vectors for training areas in Spain, Latvia, Portugal, Norway, Romania, Finland and Hungary.

In June 2016 high resolution true color (RGB) and color infra-red (CIR) aerial imagery was captured over JMRC Hohenfels Training Area in Germany. CIR imagery may be used to identify vegetation coverage and classify vegetation types.
In combination with RGB imagery and elevation data, CIR imagery may be used to detect vegetation encroachment when compared to imagery from previous years.

LiDAR (Light Detecting and Ranging) data was captured by the Bavarian State Office for Digitizing, Broadband and Survey (Landesamt für Digitalisierung, Breitband und Vermessung Bayern - or LDBV) over Hohenfels Training Area in 2015. USAREUR SRP acquired this data during 2016 and processed it into Digital Surface Model (DSM) and Digital Terrain Model (DTM) mosaics.

All acquired imagery can be viewed via the Tap In web mapping application (https://armyrangemapper.eur.army.mil/tapin), or on the annual ITAM Viewer data DVD product.

Requests for digital copies of imagery and LiDAR data can be made to: usarmy.bavaria.7atc.list.usareur-srp@mail.mil



(top) LIDAR - Light Detection and Ranging
(middle) Line of Sight using LIDAR
(bottom) Vegetation Mapping using LIDAR

USAREUR SRP Enterprise GIS

USAREUR SRP installation GIS data covers training areas from Iceland in the West, to Azerbaijan in the East, and from Norway to South Africa. The data covers 12 UTM zones and is stored in a series 27 individual geodatabases, hosted in a single Oracle database instance. Data connections to the enterprise database are managed via Esri ArcGIS Server.

All data in the geodatabases is projected to UTM WGA84 projection, and maintained according to the Spatial Data Standard for Facilities, Infrastructure and Environment (SDSFIE) database format.

ArcGIS Server allows multiple user access to the data, including read-only access for customers using the data for mapping. Multiple editors can 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 source data, rather than using multiple copies of data stored on separate machines.

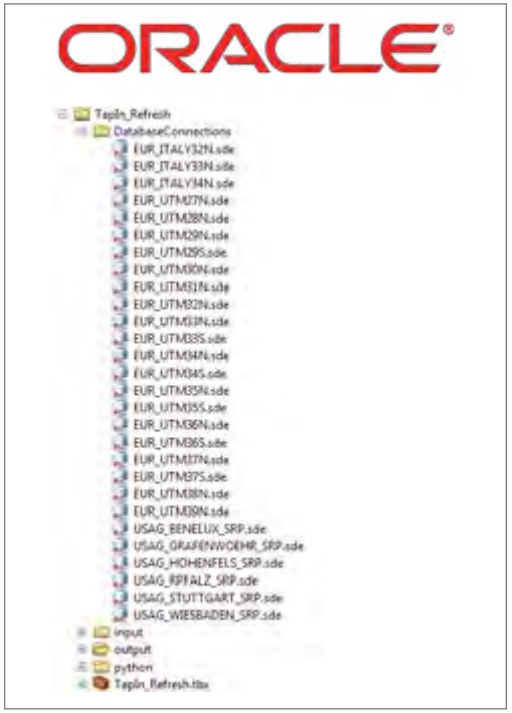
GIS Data Migration – SDSFIE 2.6 to 3.1

SDSFIE – Spatial Data Standard for Facilities, Infrastructure, and Environment

During 2016, with support from the OACSIM IGI&S migration team, all USAREUR SRP geodatabases were migrated from SDSFIE 2.6 format to the new Army standard SDSFIE 3.1 data model.

This process involved creating cross-walk spreadsheets documenting data layer attribute mapping from the old format to the new schema for each data layer. Once migrated, the data required cleaning and repairs to fix domain values and units of measurement attributes that had been amended during the migration process. The USAREUR SRP RSC team continue to standardize the SRP proponent data layers in accordance with the SRP Geospatial Data Quality Assurance Plans (QAPs) version 3.2 (January 2016).

All USAREUR SRP GIS databases are submitted quarterly to the HQDA SRP Geospatial Support Center (GSC) and the OACSIM IGI&S program for backup and quality control.

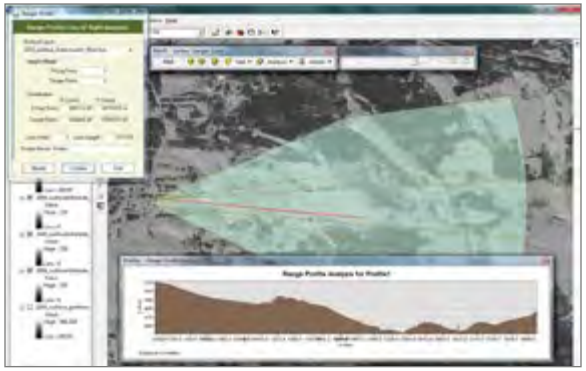


UTM Zones in USAREUR SRP area of responsibility

USAREUR SRP GIS Data Migration Project Stages

Step 1 Q4 2015	Step 2 January 2016	Step 3 February 2016	Step 4 March 2016	Step 5 April 2016	Step 6 May 2016	Step 7 June 2016	Q3 FY16 Submission 20-Jun-2016	Step 8 Sep-2016	Q4 FY16 Submission 21-Sep-2016	Step 9 November 2016	Step 10 19-Dec-2016
SDSFIE 2.6 Data Submitted to OACSIM IGI&S Migration Team	All Migrated SRP Data Received from OACSIM IGI&S Team	Migrated SRP DATA Loaded into 3.1 Army Adaption File GDB	NON-SRP Data Loaded into Army Adaption File GDB	Complete 3.1 Databases Loaded into ArcGIS Server	Pre-Submission Quality Control	SRP geospatial validation/ signature form signed by the installation Range Management Authority or delegated approval authority (ITAM Coordinator)	3rd QTR FY16: 3.1 Data Submitted to OACSIM IGI&S and DA SRP Geospatial Support Center (GSC)	GSC Quality Control Results recieved	4th QTR FY16: 3.1 Data Submitted to OACSIM IGI&S and DA SRP Geospatial Support Center (GSC)	GSC Quality Control Results recieved	1st QTR FY17: 3.1 Data Submitted to OACSIM IGI&S and DA SRP Geospatial Support Center (GSC)

4 Field Survey Equipment



The RSC GIS team carry out numerous site visits to US and foreign training areas throughout USAREUR to collect geographic data, provide support to range recon missions, and gain familiarity with the training capabilities at these locations.

In 2016 the RSC GIS team enhanced their fieldwork capabilities by purchasing a number of field survey equipment items which allow the team to gather data more easily and efficiently. Access to foreign training areas is limited and requires prior coordination with the host nation installation personnel. It is therefore important that the RSC GIS staff are able to capture as much data as possible in the limited on-site time available.

The new equipment purchases include rugged tablets with integrated satellite GPS, waterproof GPS/WIFI enabled Cameras, and small unmanned aerial vehicles (UAVs).

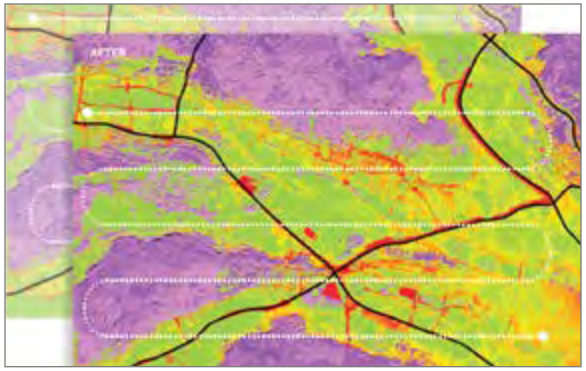
Rugged Tablets

The RSC SRP GIS team are using Panasonic FZ-G1 Toughpads with Esri ArcPad software to collect feature data in the field. The 10 inch display and 4Gb RAM tablets run on Windows 10 and are a vast improvement over Trimble GeoXT units used previously, in terms of usability and visibility. The tablets are a useful tool for on-site meetings where staff can brief personnel in the field using existing data and imagery.

Horizontal accuracy from the internal GPS is between 2 to 4 meters, which is suitable for most of the survey tasks carried out by SRP. Higher accuracies can be achieved by connecting a dedicated GPS receiver, or using the Trimble GeoXT units.

Field Cameras

The RSC SRP GIS team use Nikon Coolpix AW130 digital cameras, which are Waterproof / Shockproof, have 5x optical zoom, 4.3-21.5mm focal length, 16 megapixel sensor, full HD video, GPS and WIFI capability.



Unmanned Aerial Vehicles / Drones

In 2016 USAREUR SRP invested in drone technology with the objective of capturing small scale aerial photography and oblique images of training areas and range facilities. Drone photography taken during site visits can significantly increase the amount of area covered and aerial overview shots are useful in identifying range infrastructure and facilities. The images are also useful in marketing the capabilities of training areas.

Through the use of flight planning apps, such as Pix4D, it is possible to automatically fly flight lines at a specified altitude, with the required image overlap, to collect images that may be processed into georeferenced aerial image mosaics. Esri Drone to Map software may be used to post-process drone imagery into ortho-rectified image mosaics and 3D Digital Surface Models. Image surveys of around 2km squared are feasible using this method.

USAREUR SRP are in a learning phase with this technology and currently have a DJI Phantom 4 drone for use at the MTA's in Germany, and the smaller, more portable Mavic Pro (also from DJI) for expeditionary site surveys.

Acquisition of a DJI Inspire 2 drone is in process, which will support the addition of a Near-Infra Red (NIR) camera which will enable detection of vegetation damage and erosion when flown before and after training exercises.

Staff are undertaking FAA Small Unmanned Aerial Vehicle pilot certification and working with national aviation authorities regarding flight permission and protocols. USAREUR SRP are also developing a Standard Operating Procedure (SOP) for drone operations, including flight planning, flight operations and data post processing.

(Left) DJI Phantom 4

(Middle) GPS survey training

(Right) Drone sensors capture both true color and color infrared imagery, allowing detailed land cover mapping.

USAREUR ITAM Drone fleet:

	DJI MAVIC PRO	DJI PHANTOM 4	DJI INSPIRE 2
Weight	1.62 lbs (734g)	3 lbs. (1380g)	8.82 lbs (4000g)
Max Ascent Speed	11.8 MPH	13.4 MPH	13.4 MPH
Max Descent Speed	6.7 MPH	8.9 MPH	8.9 MPH
Max Forward Speed	40 MPH	45 MPH	58 MPH (94kph)
Max Ceiling	400 ft. AGL (Electronically Limited)	400 ft. AGL (Electronically Limited)	400 ft. AGL (Electronically Limited)
Max Flight Time	27 min.	28 min.	27 min.
Operating Temp	32° to 104°F	32° to 104°F	32° to 104°F
Satellite Systems	GPS & GLONASS	GPS & GLONASS	GPS & GLONASS
Obstacle Sensory Range	2 to 49 ft.	2 to 49 ft.	0.33-16.4 feet (10-500 cm) (Down) 2.3-98.4 feet (0.7-30 m) (Forward)
Gimbal Control Range	-90° to +30° Pitch	-90° to +30° Pitch	-130° to +40° Pitch (3 AXIS)
Camera Sensor	1/2.3" Effective pixels: 12.35 M	1/2.3" Effective pixels:12.4 M	4/3-inch CMOS sensor (16M) (Zenmuse X5)
Lens FOV	78.8°	94°	72° (15mm) 84° (12mm)
ISO Range	100-3200 (video), 100-1600 (Photo)	100-3200 (video), 100-1600 (Photo)	100 to 25600
Max Image Size	4000x3000	4000x3000	4608x3456
Max Video Size	C4K (4096x2160)	C4K (4096x2160)	UHD: 4096×2160
Max Video Bitrate	60 Mbps	60 Mbps	60 Mbps
Photo Formats	JPEG, DNG	JPEG, DNG	JPEG, DNG
Video Formats	MP4, MOV, MPEG	MP4, MOV, MPEG	MP4, MOV, MPEG
Remote Frequency	2.400-2.483 GHz	2.400-2.483 GHz	2.400-2.483 GHz & 5.725-5.850 GHz
Max Transmission Range	4.3 mi (7 km)	4.3 mi. (7km)	4.3 MI (7km)

Photo illustration

5 USAREUR SRP GIS Web and Mobile Applications

During 2016, the USAREUR SRP web-services were regularly updated with new content and features while maintaining continual 24-7 availability to the training community in Europe.

The Tap In web-application saw three new releases during the year, adding the location of Ammunition Holding Areas (AHAs), exercise locations (in development), and enhancements to Digital Globe web-service overlays. General training area statistics and coordinate search functionality was added. The admin module was improved, and resource library menus redesigned, including addition of a “share resource library link” link. The major behind the scenes update was the migration of the Tap In resource database from MS Access to MS SQL Ce, allowing greater portability, easier accreditation and updates.

Tap In data content was continually updated, including new imagery acquisitions and non-spatial content such as range capability briefings, lessons learned, Soldier’s Field Cards and range SOPs.

2016 USAREUR SRP Web Application Updates:

USAREUR SRP Website

- Addition of new contents in terms of news, articles and photos
- Routine site maintenance such as removal of dead links

Tap In

- Tap In Release 16.1 application was reviewed, deployed, configured and tested
- New set of data for AHA was added
- 457 sites linked directly to their individual Resource Library folder
- 815 Facilities linked directly to their installation Resource Library folder
- 31 regional points linked directly to their Resource Library folder
- Tap In Release 16.2 application was reviewed, deployed, configured and tested
- Tap In Release 16.3 application was reviewed, deployed, configured and tested
- Tap In data / content update for RTSD West, RTSD South, ETSD and JFOS
- Topo and Image services updated and republished
- Implemented automatic Email notification for User Feedback

Tap In SharePoint

- Updated with every version released

Datamaster / Soldier Field Card (SFC)

- Application code and data updates completed
- Sites inventories exported to pdf
- Application code and database migrated from MS Access to MS SQL Ce environment
- New Soldier's Field Card (SFC) section which includes SFC Admin page, Guidelines page and Contact page was developed and deployed. This application is used to update content for the Mobile SFC App.

Online Range Development Plan (RDP)

- Implementation of print function for Online RDP MRP projects
- Login password feature updated as required by DoD Regulation

USAREUR ITAM SharePoint

- Deployed Tap In on TSAE SharePoint
- General maintenance of the ITAM SharePoint
- Grant and revoke user access to the SharePoint
- Created and organized document libraries

USAREUR SRP GIS Portal

- Installed, configured and deployed in USAREUR SRP system environment

DA SRP Portal – USAREUR Page

- USAREUR SRP page on the DA SRP Portal was redesigned
- Foreign maps and products uploaded
- https://srp2.army.mil/gis/InstallationSRPGISPages/Pages/USAREURSRP.aspx

7ATC Route Finder / USAREUR SRP Public Site

- USAREUR SRP information displayed on 7th ATC site was updated
- http://www.eur.army.mil/7atc/RouteFinder.html

Web-Server Administration

- Application STIG Review - findings were corrected or implemented
- Installed and configured Siteminder (Web Agent) CA R12.52 version on Web server
- Installed and configure ArcGIS Server 10.4.1 software suite.

SOLDIER'S FIELD CARD APP

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 Areas 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:

Available on the App Store

ANDROID APP ON Google play

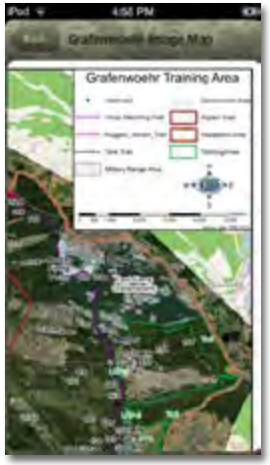
ARMY RANGE MAPPER MOBILE

The Army Range Mapper Mobile 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:

Available on the App Store

ANDROID APP ON Google play



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 Officers 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:

Available on the App Store

ANDROID APP ON Google play

Table 6 - Number of App Downloads

	SOLDIER'S FIELD CARD	ARM MOBILE	ENVIRONMENTAL OFFICER GUIDE	TOTAL DOWNLOADS
Downloads	2642	2469	1043	6154

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://armyrangemapper.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	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.7atc.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 monitored 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 server, to include the USAREUR SRP website, 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 Tap In and the srp.usareur.army.mil site, the root of the USAREUR SRP Website.

Traffic on the USAREUR SRP website surged to record highs during 2016. Site visits increased by 64% compared to 2015, to over 32,000 visits. This represents a 650% increase in site visits over the past 5 years. Unique users increased to over 1,000 per month on average for the first time, up 68% from 2015, which represents a 765% increase in unique users since 2011.

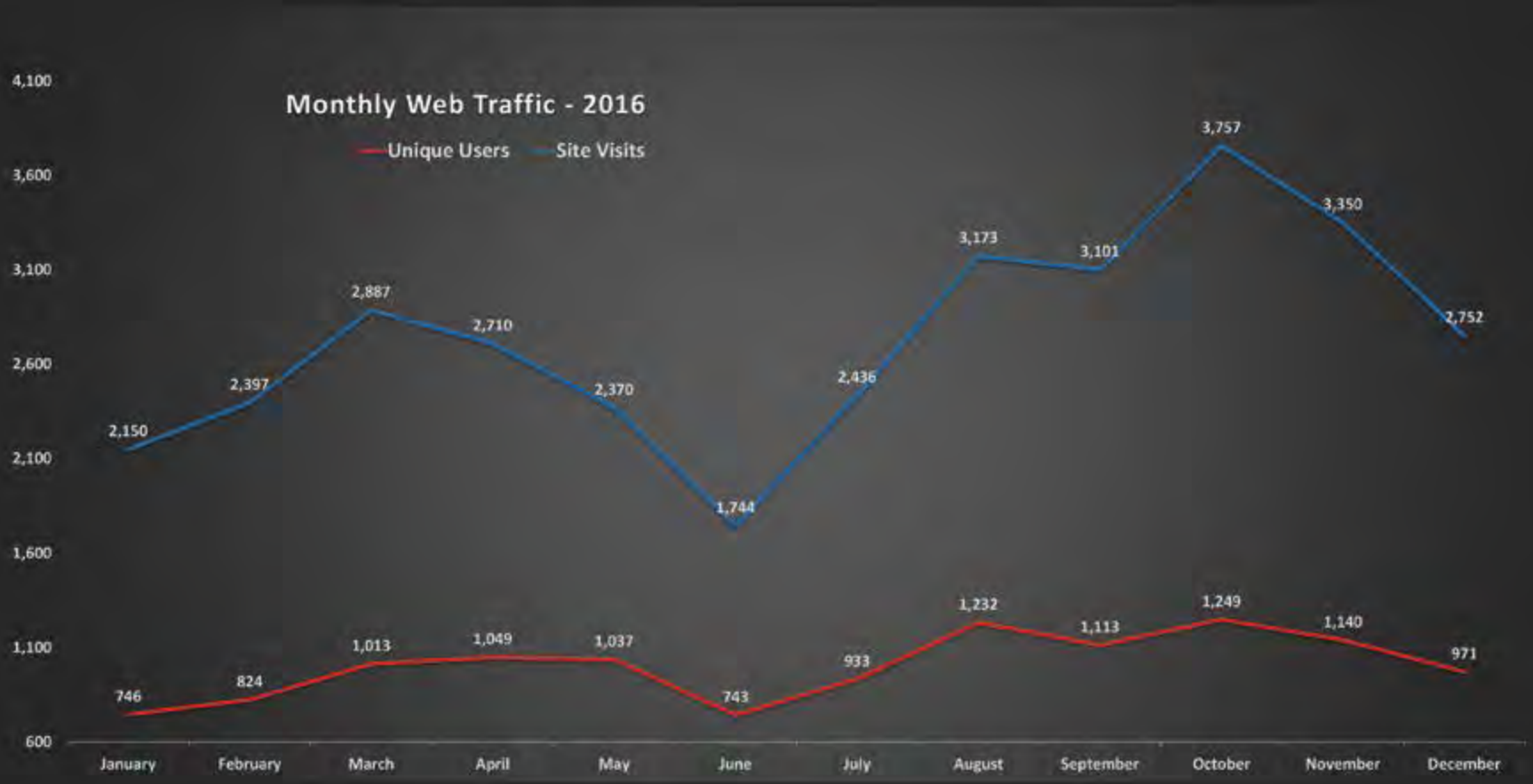
The reason for the upturn in web-traffic is clear – the growth of Tap In as USAREURs primary training resources information tool. A major factor in this has been greater use of USAREUR SRP web-services by home stationed and, since 2013, the Regionally Aligned Force (RAF) brigades rotating into Europe. Tap In is the primary source for training capabilities, maps and logistical support information for USAREUR training locations, and is a key tool in for units planning and executing training in support of Operation Atlantic Resolve.

Total annual unique users of Tap In rose by 27% in 2016. This trend is expected to continue as data content expands and the application becomes more integrated in the planning process of USAREUR units.

The monthly statistics for 2016 show that site visits and unique users peaked during late summer when the RAF units were deployed to USAREUR and Exercise Anakonda (Poland) and Combined Resolve VII (Grafenwoehr and Hohenfels) were taking place. This direct correlation highlights the role played by Tap In in directly supporting exercise planning and coordination. These results highlight importance of publicizing Tap In to maintain awareness of these tools to incoming units.

Table 7 - USAREUR SRP 2016 Summary Web-Traffic Statistics

SITES	HITS	PAGE VIEWS	SITE VISITS	AVERAGE MONTHLY UNIQUE USERS	AVG. VISIT LENGTH (MINS)
armyrangemapper.eur.army.mil (Tap In)	2,412,757	1,447,360	19,492	507	14.77
srp.usareur.army.mil	385,303	242,192	13,335	497	4.91
TOTAL	**2,798,060**	**1,689,552**	**32,827**	**1,004**	**10.76**



Note:
Tap In is currently only available on the EUR NIPR network and not accessible from CONUS networks.

6 2016 Lessons Learned and Outlook for 2017

View of the lake inside the Italian training area Foce Reno, Ravenna, Italy, Jan 24, 2017. (U.S.Army photo by Elena Baladelli).

As the tempo of multinational exercises at U.S. training areas in Germany and Eastern Europe continued at high levels throughout 2016, so the SRP Regional Support Center maintained high levels of support for these events. The primary focus of the RSC throughout the year was to respond to unit requests for products and information on foreign training areas. Soldier's Field Cards and topographic maps of these sites were the most requested items, with the team issuing over 25,000 maps and 26,000 field cards. GIS data requests and technical support requests were also primarily related to support for multinational training events in support of Operation Atlantic Resolve (OAR). Requests for large format Rehearsal of Concept (ROC) drill maps and 3D terrain boards in support of OAR were also in high demand. The RSC team had to adapt to this tempo and respond with creation of a large number of custom maps (219 tasks) due to exercises taking place in areas where no standard off the shelf products were available.

This demand for products with short turnaround time has forced the RSC to divert time away from longer term SRP GIS data development work such as SDSFIE data standardization for U.S. Garrison sites. While migration to the SDSFIE 3.1 format was completed, data collection, attribution and quality enhancements remain to be addressed. To improve data quality over the coming year, the RSC has designated an internal POC as quality control lead, who is responsible for developing practices and automation scripts to help the team to check and fix standardization issues in their data, prior to submission to OACSIM IGI&S and the SRP Geospatial Support Center (GSC).

The RSC team supported 15 site visits and participated in 24 installation events during the year, each requiring planning, costing, and after action reporting. The high tempo of travel required RSC staff to take over each others projects while staff were out of office. The multiuser enterprise GIS supported this workflow, but it was also important for staff to be familiar with data for areas outside their normal AOR. For external customers, the RSC Primary Geographic Areas of Responsibility (AOR) map was created, however internally all Analysts were involved in cross AOR projects.

During 2016 USAREUR SRP began to shift the distribution and production of map products onto the Defense Logistics Agency (DLA). Foreign training area maps are being assigned National Stock Numbers (NSNs) by the NGA for entry in the DLA Map Catalog. USAREUR SRP Soldier's Field Cards (SFC) are also listed in the DLA catalog, as well as being listed in the Central Army Registry (CAR) as Graphic Training Aids (GTA). Non-Standard foreign training area maps which do not not have assigned NSN numbers are being printed by DLA, under the DLA Mapping Customer Operations (MCO) Print On Demand (POD) facility. Non-standard maps for sites in Poland, Romania, Norway and Portugal have been printed by DLA document services and issued directly to units rotating into those areas for training. We see this trend increasing as USAREUR SRP concentrates more on data acquisition and development and more foreign training area products become available to U.S. units via standard DLA supply channels.

Strong relationships with the NGA Office of Geography, U.S. brigade Geospatial Planning Cells (GPC) and foreign military geospatial personnel have continued to prove essential in sourcing data and 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.

The Tap In web-mapping application had its busiest year to date, and continues to be a key tool for units planning training in Europe. New training sites are being added monthly, with the 173rd ABN and RAF units expanding training partnerships in Norway, Portugal and Israel in the last few months. Streamlining the data update process for Tap In remains a priority for USAREUR SRP.

Looking ahead, USAREUR SRP does not see a reduction in training intensity and demand for foreign 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.

The introduction of new field survey technology with the UAV's and GPS tablets, is increasing the efficiency and capability of the RSC team's field data acquisition, and will allow products such as vegetation analysis maps for erosion assessment and small scale 3D surface models to be developed.

2017 Outlook Summary

EVENTS

- USAREUR Installations GIS Working Group Meeting – January 2017 and TBD
- OACSIM IGI&S Workshop – 20-24 March 2017
- HQDA SRP GIS Working Group Meeting – March 2017
- ESRI EUCOM/AFRICOM Defense User Working Group – June 2017
- Esri User Conference – 10-14 July 2017
- Installation GIS Working Group Meetings – throughout year.

GIS PRODUCTS AND SERVICES

- Military Installation Map development for Vaziani, Georgia, USAG Wiesbaden MIM and updates to Yavoriv Installaiton Map, Ukraine.
- ITAM Viewer DVD set update – May 2017
- Updated Soldier's Field Cards for U.S. and multinational locations

GIS DATA ACQUISITION

- Aerial Imagery and LIDAR data acquisition over Pocek MTA, Slovenia
- Coordination with European nation partners and NGA over acquisition of civilian and military topographic data, vectors and imagery over multinational training areas.
- Coordination with IMCOM-Europe – overflights of U.S. Garrisons sites Italy and Germany.
- UAV Imagery – oblique photographs, video, RGB and NIR imagery mosaics for before and after exercise land impact assessments
- Satellite Imagery – Digital Globe WV4 tasking and acquisition for multinational sites for before and after exercise analysis.

ENTERPRISE GIS

- Development of ArcGIS Portal for web-services
- Migration of desktop clients to ArcGIS 10.5 and roll-out of ArcGIS Pro software for named users

DATABASE DEVELOPMENT AND STANDARDIZATION

- Continued quarterly submission of USAREUR SRP geodatabases to OACSIM IGI&S and SRP GSC and incorporation of quality control feedback on a rolling basis
- Standardization of foreign training area data

WEB AND MOBILE SERVICES

- Portal for ArcGIS development
- Update and refinement of USAREUR SRP mobile apps
- TSAE Training Support Handbook App deployment

Hohenburg Drop Zone,
JMRC Hohenfels Training Area, Germany

USAREUR SRP would like to thank our USAREUR, 7th ATC, TSAE and Garrison colleagues and customers; external coordination partners at the Bundeswehr, Bundesforst, NGA, 60th Engineer Detachment GPC; 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.

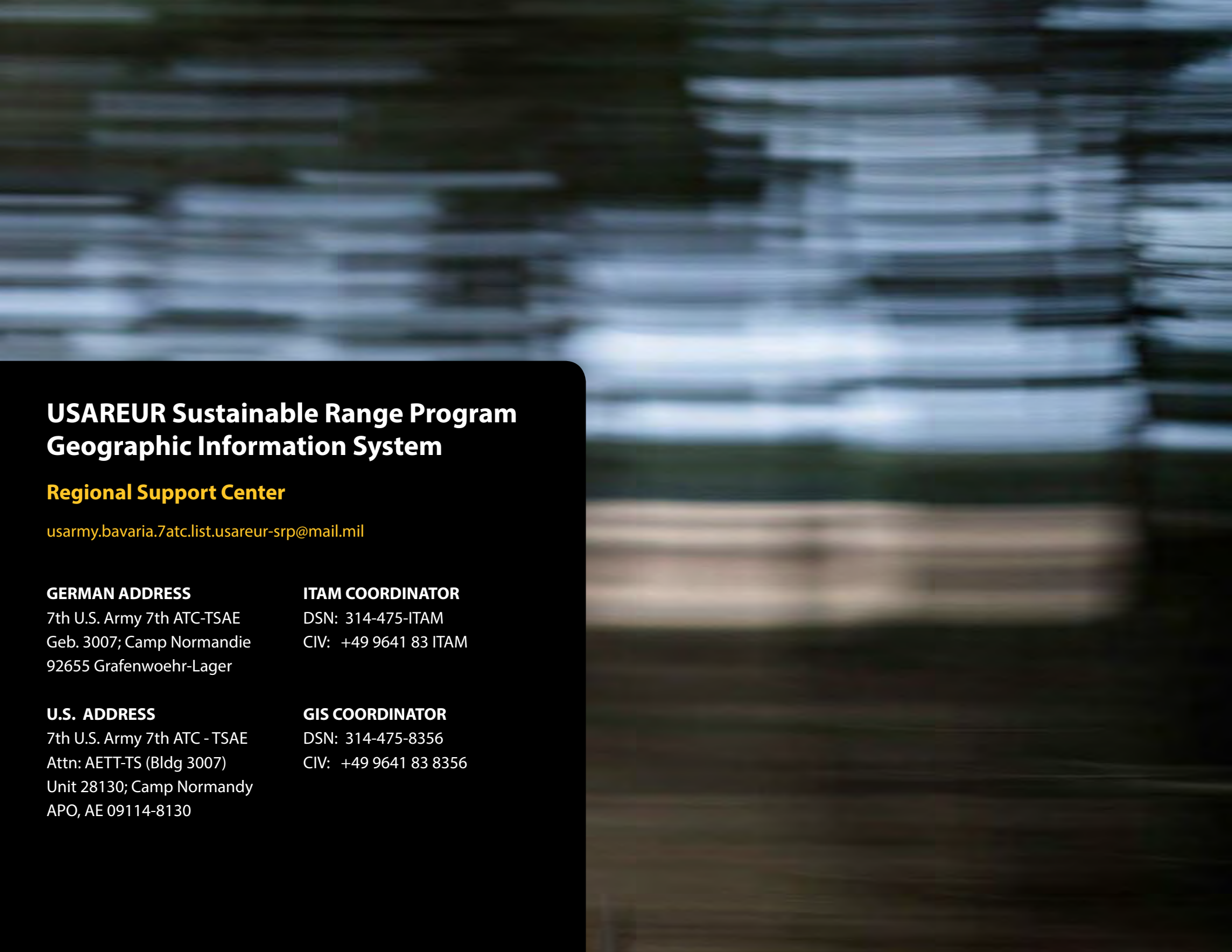
Appendix A - Acronyms and Abbreviations

AAR	After Action Review
AHA	Ammo Holding Area
AOR	Area Of Responsibility
ArcSDE	Esri Arc Spatial Database Engine
ARM	Army Range Mapper
BGIC	Bundeswehr Geo-Information Center
CAR	Central Army Registry
CCFS	Company Commanders and First Sergeants Course
CIP	Common Installation Picture
CIR	Color Infra-Red
CONUS	Continental United States
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 Globe
DLA	Defense Logistics Agency
DoD	Department of Defense
DRF	Data Request Form
DSM	Digital Surface Model
DTM	Digital Terrain Model
DZ	Drop Zone
EMALL	Department of Defense Electronic Mall
ERI	European Reassurance Initiative
ETSD	Expeditionary Training Support Division
EUCOM	United States European Command
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
HTA	Hohenfels Training Area
60th GPC	60th Engineer Geospatial Planning Cell
7th ATC	7th Army Training Command
IED	Improvised Explosive Device
IGI&S	Installation Geospatial Information and Services
IMCOM	Installation Management Command
iOS	Apple's iPhone operating system
ITAM	Integrated Training Area Management
JMRC	Joint Multinational Readiness Center
JMTG-U	Joint Multinational Training Group - Ukraine
LiDAR	Light Detection And Ranging
LRAM	Land Rehabilitation and Maintenance
LTA	Local Training Area
MCO	DLA Mapping Customer Operations
MIM	Military Installation Map
MoD	Ministry of Defense
MTA	Major Training Area
NGA	National Geospatial-Intelligence Agency
NIR	Near Infra-Red
NIPR	Non-classified Internet Protocol (IP) Router
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
POC	Point Of Contact
QAP	Quality Assurance Plan
QAQC	Quality Assurance Quality Control
QCR	Quality Control Report
QTR	Quarter
RAF	Regionally Aligned Forces
RFMSS	Range Facility Management Support System
RGB	Red, Green, Blue
RMTK	Range Managers Toolkit
ROC	Rehersal Of Concept
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
SOP	Standard Operating Procedure
SRA	Sustainable Range Awareness
SRP	Sustainable Range Program
STOL	Short Take-Off and Landing
TA	Training Area
TAPC	Training Aids Production Center
TSAE	Training Support Activity Europe
TSC	Training Support Center
UAV	Unmanned Aerial Vehicle
USAFE	U.S. Air Force, Europe
USAG	U.S. Army Garrison
USAREUR	U.S. Army Europe
UTM	Universal Transverse Mercator
VIOS	Visual Information Ordering Site
WEBREQ	WEB Requisitioning - DLA Transaction Services

Oberdachstetten Range Complex photographed from the USAREUR SRP Phantom 4 Quadcopter Drone

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.7atc.list.usareur-srp@mail.mil



USAREUR Sustainable Range Program Geographic Information System

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