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UNIVERSITÀ  
DEGLI STUDI  
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FALCIZIO WOLLEBERG  
UNIVERSITÀ DEGLI STUDI DI PADOVA



Ministero della Difesa  
Comandante Generale  
per la Difesa di Padova



PATROCINIO  
REGIONE DEL VENETO



Con il Patrocinio del  
Comune di Padova



# THE 13<sup>TH</sup> INTERNATIONAL CONFERENCE ON MILITARY GEOSCIENCES

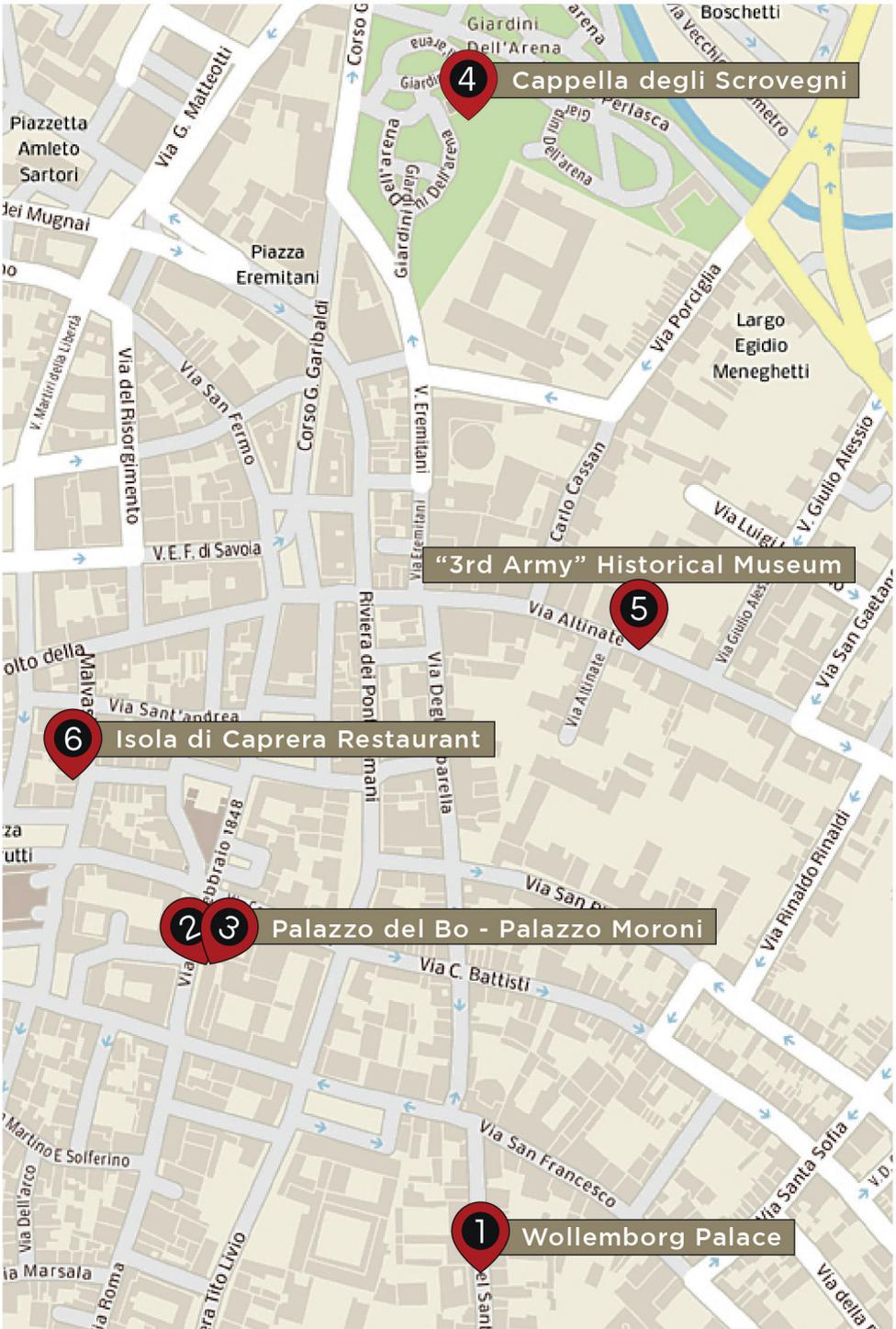
Peace follows war: geosciences, territorial impacts and  
post-conflict reconstruction

PADOVA (ITALY), 24 - 28 JUNE 2019

## CONFERENCE PROGRAM



-  **Wollemborg Palace**  
Via del Santo, 26, Padova
-  **Palazzo del Bo**  
Via VIII Febbraio, 2, Padova
-  **Palazzo Moroni**  
Via VIII Febbraio, 8, Padova
-  **Cappella degli Scrovegni**  
Piazza Eremitani, 8, Padova
-  **“3rd Army” Historical Museum**  
Palazzo Camerini, Via Altinate, 59, Padova
-  **Isola di Caprera Restaurant**  
Via Marsilio da Padova, 11, Padova



4

Cappella degli Scrovegni

"3rd Army" Historical Museum

5

6

Isola di Caprera Restaurant

2

3

Palazzo del Bo - Palazzo Moroni

1

Wollemborg Palace

ARRIVAL DAY – SUNDAY 23 JUNE  
Wollemborg Palace, Padova

1

6.00 pm – 8.30 pm

**Registration**

**Battlefields' wines: vineyards, wines and winemakers from the old war fronts**

Participants will be welcomed on Sunday 23 June inside the prestigious Palazzo Wollemborg, home of the Museum of Geography. The event will consist of a tasting of wines and products on the battlefields of the twentieth century world conflicts. The tasting will be conducted by Mauro Varotto (Professor of Food Geography at the University of Padova and scientific director of the Museum of Geography) and Giovanni Donadelli (curator of the Museum of Geography).

DAY 1 – MONDAY 24 JUNE

Aula Magna "Galileo Galilei", Palazzo del Bo, Padova

2

8.30 am – 9.00 am

**Registration**

9.00 am – 9.45 am

**Opening Ceremony**

- Rosario Rizzuto, *Rector of the University*
- Gianluigi Baldo, *Director of the DISSGEA*
- Massimo Giorgetti, *Vice-president of the Regional Council*
- Andrea Colasio, *Councillor of the Culture - Municipality of Padova*
- Hennie Smit, *President of the IAMG*

9.45 am – 10.35 am

**Keynote**

- Edward P. F. Rose – *Geology and the Liberation of Normandy in World War II: a Review to Help Mark the 75th Anniversary of the Allied D-Day, 6 June 1944*

10.35 am – 11.00 am

**Coffee break**

11.00 am – 11.50 am

**Keynote**

- Hennie Smit – “Green” Militaries: *The Military-Environment Conundrum*
- 

11.50 am – 12.40 pm

**Scientific Session / A-I****Geosciences and Warfare***Chair A. Bondesan*

- **11.50 am – 12.10 pm**

Doyle Peter, Verdegem S., Schäfer R. – *Fortress Wijtschate: Geological Controls on the German 1914-1917 Frontline in Flanders, as Revealed by Archaeology*

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- **12.10 pm – 12.30 pm**

Ehlen Judy – *Defending Britain’s Soft Underbelly: Invasion, Fortification and Geology along the English Channel*

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- **12.30 pm – 12.40 pm**

Discussion

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12.40 pm – 2.10 pm

**Lunch at Isola di Caprera Restaurant**

2.10 pm – 4.05 pm

**Scientific Session / A-II****Geosciences and Warfare***Chair A. Bondesan*

- **2.10 pm – 2.30 pm**

Franchi Giampaolo – *Italian Military Memorials Architectural Review – Conservative Restoration and Territorial Promotion*

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- **2.30 pm – 2.50 pm**

Craig Drew – *Sapper Geology: Part 5. Infrastructure Support: an Era of Change and Complexity*

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- **2.50 pm – 3.10 pm**

Fuhriman Chris, Ridgeway J. – *Visualizing the Impacts of Topography: A Geographic Perspective of the Battle of Marathon*

- **3.10 pm- 3.30 pm**

Blaine Mark – *The Geography of Territorial Disputes in the East and South China Seas*

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- **3.30 pm – 3.50 pm**

Bulmer Mark H. – *Geological Considerations for Military Works in the Afrin Battlespace, Syria*

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- **3.50 pm – 4.05 pm**

Discussion

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**4.05 pm – 4.30 pm**

**Coffee break**

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**4.30 pm – 5.45 pm**

**Scientific Session / B**

**International perspectives in Military Geosciences**

*Chair M. Bulmer*

- **4.30 pm – 4.50 pm**

Galgano Francis – *Borders, Boundaries and Governance: A Geospatial Analysis of Trends in Maritime Piracy, the Security Implications of Crime on the High Seas*

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- **4.50 pm – 5.10 pm**

Lohman Andrew – *The Vietnam War: A Geographic Analysis*

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- **5.10 pm – 5.30 pm**

Stewart Alexander K. – *A Decade Later in Afghanistan: Effectiveness of US Army Agricultural Development Teams' Efforts*

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- **5.30 pm – 5.45 pm**

Discussion

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**5.45 pm – 6.10 pm**

**Vignette**

- Batson Douglas – *Dr. Isaiah Bowman and the Centennial of The Inquiry*

DAY 2 – TUESDAY 25 JUNE  
Padova

Parallel session 1 – Sala Anziani, Palazzo Moroni, Padova

2

8.45 am – 10.40 am

**Scientific Session / C**

**Trafficability and military mobility**

*Chair: H. Häusler*

• **8.45 am – 9.05 am**

Häusler Hermann – *Examples of German Trafficability Maps from the Eastern Front in Europe 1941-45*

• **9.05 am – 9.25 am**

Rybansky Marian – *Impact of the physical geographic sphere on the cross-country movement*

• **9.25 am – 9.45 am**

Sion Brad, McDonald E.V., Hartshorn E., Sabol D., Shoop S.A. – *The Utility of Soil-Landform Relationships in Terrain Mobility Models Based on Soil-Strength Characteristics in Different Environmental and Geologic Settings*

• **9.45 am – 10.05 am**

Hartshorn Evan, McDonald E.V., Page D., Sabol D., Minor T. – *Evaluation of Military Vehicle Mobility through UAS Photogrammetry and Digital Terrain Modeling*

• **10.05 am – 10.25 am**

Frankenstein Susan, Hodgdon T., Shoop S. – *Seasonal Impacts on Maneuver in Highly Organic and Gravelly Soils*

• **10.25 am – 10.40 am**

Discussion

10.40 am – 11.05 am

**No Host Coffee Break**

11.05 am – 12.20 pm

**Scientific Session / D**

**Post-conflict reconstruction, cultural heritage & tourism**

*Chair: P. Plini*

• **11.05 am – 11.25 am**

Banks Giovanni – *Geotechnical Considerations for Reusing Foundations in Post-Conflict Reconstruction*

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• **11.25 am – 11.45 am**

Ronit Lupu – *Charge and Preserve – How does the IAA (Israel Antiquity Authority) Help the IDF (Israel Defense Force) to Balance Operational and Training Needs with Protecting National Treasures*

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• **11.45 am – 12.05 pm**

Bregantin Lisa – *A New Land. Shrines, Military Artifacts, New Land Use Issue – Military Tourism and Monuments*

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• **12.05 pm – 12.20 pm**

Discussion

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12.20 pm – 1.50 pm

**Lunch at Isola di Caprera Restaurant**



1.50 pm – 3.00 pm

**Scientific Session / E**

**Geospatial intelligence and Remote Sensing**

*Chair: P. Guth*

• **1.50 pm – 2.10 pm**

Sabol Donald, Minor T., Page D., Hartshorn E., McDonald E. – *Investigating Remote Measurement of Sub-Surface Soil Moisture for Military Operations*

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• **2.10 pm – 2.30 pm**

Roskin Joel, Eliyahu Dekel-Dolitzky – *Identification and Analysis of the 1968-1973 Egyptian Army Field Preparations for Crossing the Suez Canal and the Internal Conflicts between Israel Defense Forces Intelligence Research Units*

- **2.30 pm – 2.50 pm**

Mtshawu Babalwa – *An Evaluation and Comparison of Ordinary Least Squares and Geographically Weighted Regression Tools for Predicting Surface Soil Texture, Using Remote Sensing Data*

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- **2.50 pm – 3.00 pm**

Discussion

Parallel session 2 – Aula Nievo, Palazzo del Bo, Padova

3

**8.45 am – 10.40 am**

**Scientific Session / F**

**Training areas & shooting ranges**

*Chair: H. Smit*

- **8.45 am – 9.05 am**

Kniewald Goran – *Environmental Impact of Military Shooting Ranges*

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- **9.05 am – 9.25 am**

Bezuidenhout Jacques – *Estimation of the Environmental Impact of Military Exercises on Bombing Ranges by Employing Radionuclide Mapping*

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- **9.25 am – 9.45 am**

Sandham Luke, Marx J. – *The Quality of EIA Reports for Projects Affecting Military Activities*

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- **9.45 am – 10.05 am**

Brenot Jérôme, Devos A., Perarnau R. – *Simulating the trench War: the Practice Camps in Aube (Champagne, France), 1914-1919*

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- **10.05 am – 10.25 am**

Hodgdon Taylor S., Shoop S.A. – *Preliminary Assessment of Landform Soil Strength on Glaciated Terrain in New England*

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- **10.25 am – 10.40 am**

Discussion

**10.40 am – 11.05 am**     **No Host Coffee Break**

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**11.05 am – 12.20 pm**     **Scientific Session / H**  
**Subterranean & Underground Warfare**

*Chair: J. Ehlen*

- **11.05 am – 11.25 am**  
Roskin Joel, Richemond-Barak D. – *Cross-border Tunnels between Lebanon and Israel: Geography, Geology, and Underground Invasion Strategies*

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  - **11.25 am – 11.45 am**  
Macini Paolo, Sammuri P. – *The Italian Corps of Engineers in WWI: Innovations in Mining and Tunnel Warfare*

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  - **11.45 am – 12.05 pm**  
Bulmer Mark H. – *Contemporary Use of Subterranea to Increase Survivability*

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  - **12.05 pm – 12.20 pm**  
Discussion
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**12.20 pm – 1.50 pm**     **Lunch at Isola di Caprera Restaurant**



**1.50 pm – 3.00 pm**     **Scientific Session / G**  
**Military Archaeology**

*Chair: J. Bezuidenhout*

- **1.50 pm – 2.10 pm**  
De Guio Armando, Magnini L. – *Remarking Warscape Archaeology: Fresh News from the Not-Quite Central-Alpine Front*

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- **2.10 pm – 2.30 pm**  
Nicolis Franco – *Digging Memories: Archaeology of the Great War in Trentino, Northern Italy*

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- **2.30 pm – 2.50 pm**  
Francese R., Bondesan, A. – *The White War in the Italian Alps: a geophysical approach*

- **2.50 pm – 3.00 pm**  
Discussion

Afternoon – Aula Nievo, Palazzo del Bo, Padova

2

**3.00 pm – 3.40 pm**

**Plenary lecture**

*Chair: A. Bondesan*

- Friedrich Teichmann (participation requested) –  
*Current Operational Challenges for Military Geo and Innovative Approaches*

**3.40 pm – 4.20 pm**

**Transfer to museum and Coffee Break**

**4.20 pm – 6.20 pm**

**Visit to “3rd Army” Military Museum and the Photo Exhibit: El Alamein 1942. Italians at War on the North African Front**

5

**Poster Session**

- Bondesan Aldino, Preto N., Fioraso M. – *Wartime use of caves in the Italian classical karst (Austro-Hungarian front, WWI)*
- De Matos-Machado Rémi – *A New Automated Method to Map Large-Scale Battlefields Using High Resolution DTM*
- Doyle Peter - *Disputed Earth: geology and trench warfare 1914-1918*
- Häusler Hermann – *German Military Specialist Maps of the North Italian Theatre of War 1945*
- Häusler Hermann – *War Geology of the Imperial and Royal Army at the Isonzo-Front 1918*
- Henrico Ivan – *Importance of Remote Sensing as Part of the Military Geography Curriculum at the South African Military Academy*

- Hodgson Michael E., Piovan S.E., Porter D., Mozzi P. – *Modeling Overland Sediment Movement on the South Carolina Training Center from an Extreme Hazardous Rainfall Event*

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- Laureti Lamberto – *The Evolution of the Italian Treatises about Military Geography and Geology During the Last Two Centuries*

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- Mariani Guido Stefano, Pelfini M., Zerboni A. – *Napoleon in the Amphitheatre: Geomorphological Constraints on Tactics and Use of Terrain During the Battle of Rivoli (1797)*

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- Mtshawu Babalwa, Ramotsie T. J. – *A Blueprint for Mapping Bare-Soil Areas Using Landsat 8 Oli/Tir Data at Surface Reflectance*

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- Piovan Silvia, Maugeri E., Hodgson M.E., Luconi S. – *The Paths of General Sherman's Army Through the Wetlands of South Carolina*

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- Plini Paolo, Di Franco S., Salvatori R. – *The Italian Army in Russia during WWII, GIS Representation of Small-Scale Historical Events*

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- Rybansky Marian – *The Impact of Landscape Micro-Relief Rorms on the Mobility of Military Vehicles*

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- Rybansky Marian, Krokusova J. – *Military Cemeteries as Anthropogenic Shapes of the Physical Earth's Surface*

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- Vergara Mauricio N. – *History of an Unexpected Enemy: Meteorology and Avalanches in the Alps during the First World War*

DAY 3 – WEDNESDAY 26 JUNE  
Venice

**8.30 am – 1.00 pm**

**Mid-conference excursion – Venice islands and fortifications**

- **8.30 am – 9.30 am**

Transfer by bus to Venice

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- **9.30 am – 10.45 am**

Visit of Forte Carpenedo

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- **10.45 am – 12.00 pm**

Transfer by bus and boat tour in the lagoon

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- **12.00 pm – 1.00 pm**

Visit to the Lazzaretto Nuovo island

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**1.00 pm – 2.30 pm**

**Lunch**

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**2.30 pm – 8.00 pm**

- **3.15 pm – 4.00 pm**

Visit to the Torre Massimiliana and Fort S. Andrea (from the boat)

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- **4.00 pm – 6.15 pm**

Free tour (on your own) at San Mark Square and/or Naval Museum

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- **6.15 pm – 8.00 pm**

Return to Padova by boat and group bus, or by train (participants may spend the late afternoon and evening in Venice and return by train to Padova on their own)

DAY 4 – THURSDAY 27 JUNE  
Montebelluna

**8.30 am – 10.15 am**      **Bus departure to Museo Memoriale della Grande Guerra (Museum Memorial of the Great War) of Montebelluna**

**10.15 am – 10.40 am**      **Coffee Break**

**10.40 am – 12.55 pm**      **Off site Scientific Session / I  
World Wars and Italy**

*Chair: E. P. F. Rose*

- **10.40 am – 11.00 am**  
Smit Hennie – *Italian Prisoners of War in South Africa: Circumstances and Contributions*

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- **11.00 am – 11.20 am**  
Czaja Michael R., Doe W. W. III, – *The U.S. 10th Mountain Division in Italy, 1945: Initial Operations in the Apennines*

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- **11.20 am – 11.40 am**  
Plini Paolo, Di Franco S., Salvatori R. – *Geographical Representation of the Royal Italian Army War Sectors and Sites During the First World War*

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- **11.40 am – 12.00 pm**  
Piovan Silvia E., Hodgson M.E. – *A Military-Engineered Flood in WWI: the Case Study from the Adige and Fratta-Gorzone Rivers (Italy)*

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- **12.00 pm – 12.20 pm**  
Rose Edward P. F. – *British Military Geology Breaks New Ground: the Italian Campaign of 1943–1945*

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- **12.20 pm – 12.40 pm**  
Huscher Theodore L. – *Early 1917 Aerial Photo Mosaics of the Isonzo Front: A Closer Study*

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- **12.40 pm – 12.55 pm**  
Discussion

**12.55 pm – 2.10 pm      Lunch**

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**2.10 pm– 6.40 pm**

**Visit of:**

- **MEVE – Memoriale Veneto della Grande Guerra (Great War Memorial)**
  - **Montello Military Ossuary**
  - **Jonathan Collection – Historical Aircraft Foundation**
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**7.30 pm– 10.00 pm**

**Conference Dinner at Farra di Soligo**

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**11.30 pm**

**Return to Padua**

**8.45 am – 10.40 am**

**Scientific Session / J**

**Military cartography and GIS**

*Chair: S. Piovan*

- **8.45 am – 9.05 am**

De Matos-Machado Rémi – *Landform Inventory and Classification on the Battlefield of Verdun (France) Using High Resolution DTM*

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- **9.05 am – 9.25 am**

Dai Prà E., Gabellieri N., Maggiore Boschian Bailo M. – “*News on the Eastern Front*”. *The WWI Tactical Maps of the Italian Army in the Historical Archive of the 3° Armata: Proposals for a Semiologic Interpretation and a Digital Analysis*

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- **9.25 am – 9.45 am**

Guth Peter – *Optimizing the Display of Lidar Topography to Enhance Terrain Analysis*

- **9.45 am – 10.05 am**

Henrico Ivan, Henrico S.J., Coetzee S. – *Suitability of the TanDEM-X 90 m DEM Compared With the SRTM 30 m DEM on the Calculation of a Visibility Analysis for Military Operations*

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- **10.05 am – 10.25 am**

Carturan Luca, Bondesan A., Carton A., Cazorzi F., Cucchiario S. – *The Glaciated Landscape Across the WWI Front: Quantitative Reconstructions Based on Documentary Data and Modern Methods*

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- **10.25 am – 10.40 am**

Discussion

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**10.40 am – 11.05 am**

**Coffee Break**

11.05 am – 12.20 pm

**Scientific Session / K****Military fortifications and lines of defences***Chair: F. Galgano*

- **11.05 am – 11.25 am**  
Marino Michelangelo, Campisi T. – *A study on Military Pillboxes in Sicily Between 1935 and 1943: Structural Diversity and Typologies Linked to the Strategic Needs Arising During the WW2*

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- **11.25 am – 11.45 am**  
Premi Francesco – *Fortress Mount Baldo. Definition and Evolution of a Military Landscape*

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- **11.45 am – 12.05 pm**  
Pinagli Anita, Blasoni P., Granduzzi M. – *Forte Beisner- Opera 4 Ugovizza: A Vallo Alpino del Littorio bunker reused during the Cold War in northeast Italy*

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- **12.05 pm – 12.20 pm**  
Discussion

12.05 pm – 1.50 pm

**Lunch at Isola di Caprera Restaurant**

1.50 pm – 3.45 pm

**Scientific Session / L****Lines of defences and mountain warfare***Chair: F. Galgano*

- **1.50 pm – 2.10 pm**  
Pastori G. – *The Durand line: a fragile border in the heart of Asia*

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- **2.10 pm – 2.30 pm**  
Drozda Jiri, Paulus F., Steinova S. – *The Demarcation of the Czechoslovak Border in the Period 1918-1924*

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- **2.30 pm – 2.50 pm**  
Brin Eldad – *The Interface Between the Civilian and Military on the Israeli Side of the Divided Jerusalem, 1948-1967*

- **2.50 pm – 3.10 pm**

Garzarella Adele, Narebski W., Deere R., Patricelli M. – *Outline of Geology of Battlefields of the Italian Campaign: the Mountain Warfare from the Gustav (Lazio-Abruzzo) to the Gothic Line (Toscana-Emilia Romagna)*

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- **3.10 pm – 3.30 pm**

Doe W. William III, Czaja M. – *The 10th Mountain Division at Camp Hale, Colorado: The Origin of Mountain Alpine Warfare Testing and Training in the U.S.*

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- **3.30 pm – 3.45 pm**

Discussion

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**3.45 pm – 4.10 pm**

**Coffee Break**

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**4.10 pm – 5.40 pm**

**IAMG Assembly**

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**5.40 pm – 6.00 pm**

**Conference closing remarks and Closing of ICMG19**

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**6.00 pm – 6.30 pm**

**Post Conference Field Trip info**





[www.icmg19.it](http://www.icmg19.it)



[www.dissgea.unipd.it](http://www.dissgea.unipd.it)



[www.siggmi.it](http://www.siggmi.it)



[www.militarygeoscience.org](http://www.militarygeoscience.org)