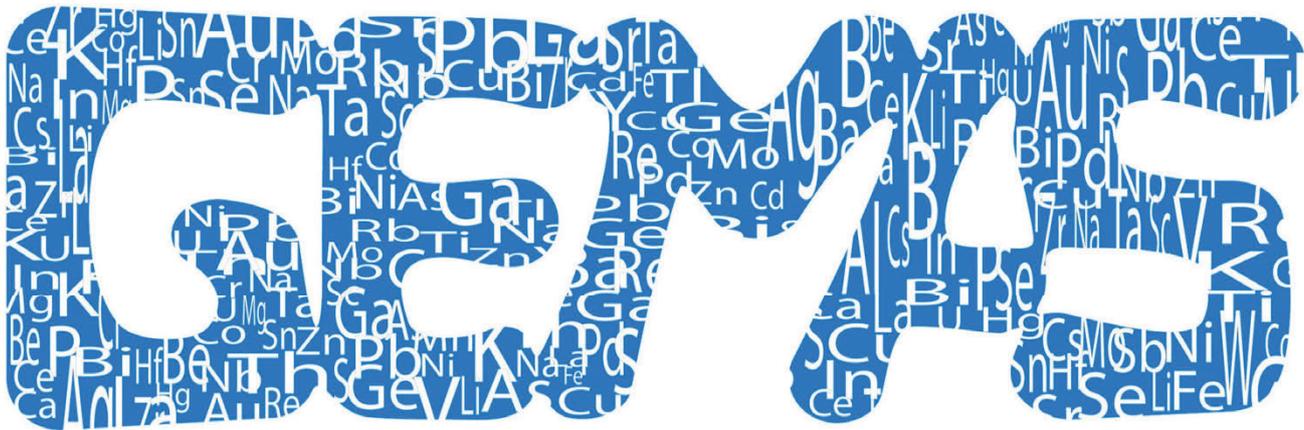


# Geochemical Mapping of Agricultural and Grazing Land Soil in Europe

EuroGeoSurveys Geochemistry Expert Group



**Calendar for the Year**

*Special Edition:  
The GEMAS Project in Italy*

# 2019

**Selected images taken in the field for the  
GEOCHEMICAL ATLAS OF AGRICULTURAL AND  
GRAZING LAND SOIL OF ITALY**





Sestriere (Western Italian Alps)

January

2019

GEMAS  
Geochemical mapping of Europe

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
31	1 1	2	3	4	5	6
7	8 2	9	10	11	12	13
14	15 3	16	17	18	19	20
21	22 4	23	24	25	26	27
28	29 5	30	31	1	2	3
4	5 6	6	7	8	9	10



Solfataro of Phlegrean Fields (Naples, Southern Italy)

February

2019

GEMAS  
Geochemical mapping of Europe

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
28	29 5	30	31	1	2	3
4	5 6	6	7	8	9	10
11	12 42. NDF / EG Chairs (Brussels)	13	14	15	16	17
18	19 8	20	21	22	23	24
25	26 9	27	28	1	2	3



Aremogna plain (Central Apennines, Italy)

**March**

**2019**

**GEMAS  
Geochemical mapping of Europe**

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
25	26 9	27	28	1	2	3
4	5 10	6	7	8	9	10
11	12 11	13	14	15	16	17
18	19 12	20	21	22	23	24
25	26 13	27	28 46. EGS GM, WS (Budapest)	29	30	31



Mt. Somma-Vesuvius (Naples, Southern Italy)

**April**

**2019**

**GEMAS  
Geochemical mapping of Europe**

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
25	26 13	27	28	29	30	31
1	2 14	3	4	5	6	7
8	9	10	11	12	13	14
EGU General Assembly 2019, Vienna (7. – 12. April 2019)						
15	16 16	17	18	19	20	21
22	23 17	24	25	26	27	28
29	30 18	1	2	3	4	5



Vineyard (Tuscany, Central Italy)

May

2019

GEMAS  
Geochemical mapping of Europe

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
22	23 17	24	25	26	27	28
29	30 18	1	2	3	4	5
6	7 19	8	9	10	11	12
13	14 20	15	16	17	18	19
20	21 21	22	23	24	25	26
27	28 22	29	30	31	1	2



Matese Mts (Southern Apennines, Italy)

**June**

**2019**

**GEMAS  
Geochemical mapping of Europe**

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
27	28 22	29	30	31	1	2
3	4 23	5	6	7	8	9
10	11 24	12	13	14	15	16
17	18 25	19	20	21	22	23
24	25 26	26	27	28	29	30
1	2 27	3	4	5	6	7



View from Mt. Mutria (Southern Apennines, Italy)

July

2019

GEMAS  
Geochemical mapping of Europe

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
24	25 26	26	27	28	29	30
1	2 27	3	4	5	6	7
8	9 28	10	11	12	13	14
15	16 29	17	18	19	20	21
22	23 30	24	25	26	27	28
29	30 31	31	1	2	3	4





Wheat field (Southern Italy)

August

2019

GEMAS  
Geochemical mapping of Europe

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
29	30 31	31	1	2	3	4
5	6 32	7	8	9	10	11
12	13 33	14	15	16	17	18
19	20	21	22	23	24	25
Goldschmidt Barcelona (18. – 23. August 2019)						
26	27 35	28	29	30	31	1



Castel San Vincenzo (Central Apennines, Italy)

September

2019

GEMAS  
Geochemical mapping of Europe

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
26	27 35	28	29	30	31	1
2	3 43. National Delegates Forum (Lisbon)	4	5	6	7	8
9	10 37	11	12	13	14	15
16	17 38	18	19	20	21	22
23	24 39	25	26	27	28	29
30	1 40	2	3	4	5	6



Salt flats from Regional Park of Molentargius – Saline (Cagliari, Sardinia)

October

2019

GEMAS  
Geochemical mapping of Europe

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
<sup>30</sup>	1 40	2	3	4	5	6
7	8	9	10	11	12	13
47. General Meeting & Directors Workshop (Prague)						
14	15 42	16	17	18	19	20
21	22 43	23	24	25	26	27
28	29 44	30	31	<sup>1</sup>	<sup>2</sup>	<sup>3</sup>



Gulf of Pozzuoli, Phlegrean Fields (Naples, Southern Italy)

**November**

**2019**

**GEMAS  
Geochemical mapping of Europe**

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
28	29 44	30	31	1	2	3
4	5 45	6	7	8	9	10
11	12 46	13	14	15	16	17
18	19 47	20	21	22	23	24
25	26 48	27	28	29	30	1



Wild horses of Matese Mts (Southern Italy)

**December**

**2019**

**GEMAS**  
**Geochemical mapping of Europe**

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
25	26 48	27	28	29	30	1
2	3 49	4	5 World Soil Day	6	7	8
9	10 50	11	12	13	14	15
16	17 51	18	19	20	21	22
23	24 52	25	26	27	28	29
30	31	1 January 2020	2	3	4	5

## GEMAS – The Project Team

### Project management:

Clemens Reimann: Geological Survey of Norway, Chairman EuroGeoSurveys Geochemistry Expert Group.  
 Manfred Birke: Federal Institute for Geosciences and Natural Resources, Germany.  
 Alecos Demetriades: Institute of Geology and Mineral Exploration (IGME), Hellas.  
 Ilse Schoeters: Rio Tinto, Belgium.

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**SLOVENIA:** Mateja Gosar, Geological Survey of Slovenia

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**SWITZERLAND:** Peter Hayoz, Federal Office of Topography, swisstopo, Swiss Geological Survey; Reto Giulio Meuli, Agroscope Reckenholz-Tänikon Research Station ART

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### List of industry sponsors of the project at time of writing:

- Eurometaux
- Cobalt Development Institute (CDI)
- European Copper Institute (ECI)
- Nickel Institute, Europe
- European Precious Metals Federation (EPMF)
- International Antimony Association (I2a)
- International Manganese Institute (IMn)
- International Molybdenum Association (IMoA)
- International Tin Research Institute (ITRI)
- International Zinc Association (IZA)
- International Lead Association-Europe (ILA-Europe)
- European Borates Association (EBA)
- The (REACH) Vanadium Consortium (VC)
- The (REACH) Selenium and Tellurium Consortium
- Contact persons: Ilse Schoeters (Rio Tinto) and Violaine Verougstraete (Eurometaux)

### Laboratories involved in the analyses of GEMAS samples:

- State Geological Institute of Dionyz Stur: sample preparation, CEC (contract laboratory)
- BGR, Germany: XRF, LOI, Br, I
- NGU, Norway: pH, C<sub>tot</sub>, S<sub>tot</sub>, Pb-isotopes, magnetic susceptibility, colour
- FUGRO, Germany: TOC (contract laboratory)
- ACME, Vancouver, Canada: aqua regia extraction, 53 elements (contract laboratory)
- CSIRO Land and Water, Australia: MIR, Kd-Values (special research contract with Eurometaux)
- SGS, Toronto, Canada: MMI<sup>®</sup> extraction, 53 elements (free analyses)
- Technische Universität Bergakademie Freiberg: C, N, S
- University of Kazan, Russia: Magnetic properties
- James Hutton Institute, UK: Mineralogy
- Canberra and Copenhagen Universities: Sr isotopes

<http://gemas.geolba.ac.at/>

