

[GSC-18](#) WORKSHOP

The 18th Workshop of the Genomic Standards Consortium

June 12-15, 2016

Hellenic Center for Marine Research, Heraklion Crete, Greece

**Coordinating Metadata Standards and
“putting the standards into action”**

GENERAL INFORMATION

Theme: Coordinating Metadata Standards and “putting the standards into action”

Location: Institute of Marine Biology Biotechnology and Aquaculture ([IMBBC](#))
Hellenic Center for Marine Research ([HCMR](#))

Web page: http://wiki.gensc.org/index.php?title=GSC_18

GSC Organizers: Lynn Schriml, Nikos Kyrpides, Frank Oliver Glöckner, Folker Meyer, Pelin Yilmaz

Local and Co-Organizers (IMBBC/HCMR): Antonios Magoulas, Georgios Kotoulas, Evangelos Pafilis, Melanthis Stavroulaki

GSC-18 Dates: June 12-15, 2016

Satellite Workshop : GSC-18 Crete Island Sampling Day (ISD): June 15, 2016

Registration: is now closed. To view your registration please refer to the information available in the “Registration Confirmation” email you received from “events@regonline.com”

Participants Session sign-up sheet: is available [here](#)

Logistics: useful information is available [here](#)

Accommodation: A bulk booking has been made at the [Astir Beach Hotel](#) (1.6km/1mi away), please quote **HCMRGSC18** for a price offer of 50 Euros/night (single room with breakfast) or 60 Euros/night (double room with breakfast) ([map](#)). The offer applies to bookings made by **15th April 2016**. A direct link to the hotel's reservation form is available [here](#).

Other nearby options on accommodation are also available; please see the [accommodation](#) section on the [GSC18 web site](#).

Confirmed GSC-18 Speakers (Keynotes in Bold):

Arianna Broggiato, OSD, BE	Renzo Kottmann, MM-MPI, DE
Pier Buttigieg, AWI, DE	Nikos Kyrpides, JGI, US
Chelsea Carey, UCR, US	Manolis Mandalakis, HCMR, GR
Simon Claus, VLIZ, BE	Dimitra Manou, AUTH/HCMR, GR
Guy Cochrane, EBI, UK	Ilene Mizrahi, NCBI, US
Jim Cole, MSU, US	Sumir Panji, IDM / Uni Cape Town, ZA
Daniele Daffonchio, KAUST, SA	Claire Nédellec, INRA, FR
Neil Davies, UCB, US	Nikolaos Nikolaidis, TUC, GR
Klaas Deneudt, VLIZ, BE	Anastasis Oulas, HCMR, GR
Danilo Ercolini, Uni Naples, IT	Christos Ouzounis, CERTH, GR
Antonio Fernandez-Guerra, MM-MPI, DE	Evangelos Pafilis, HCMR, GR
Rob Finn, EBI, UK	Donovan Parks, ACE, AU
Folker Meyer, ANL, US	Pavlos Pavlidis, ICS FORTH, GR
George Garrity, SIGS, US	Lynn Schriml, UMB, US
Panagiotis Gkorezis, UHASSELT, BE	Lee Stanish, NEON
Frank Oliver Glöckner, MM-MPI, DE	Melanthia Stavroulaki, HCMR, GR
Phillip Goldstein, Uni Colorado, US	Petra ten Hoopen, EBI, UK
Phil Hugenholtz, ACE, AU	Scott Tighe, Uni Vermont, US
Pantelis Katharios, HCMR, GR	Nicolas Tsesmetzis, Shell, UK
Wiebe Kooistra, SZN, IT	Georgios Tsiamis, Uni Patras, GR
Georgios Kotoulas, HCMR, GR	Pelin Yilmaz, MM-MPI, DE

PRE WORKSHOP MEETINGS

June 10th, Friday

HCMR Seminar Room (Main building)

2:00 pm - 7:00 pm SIGS Editorial Board [meeting](#)

June 11th, Saturday

HCMR Seminar Room (Main building)

10:00 - 17:00 GSC Board meeting

19:00 - 21:00 GSC Board Dinner

GSC-18 WORKSHOP SUMMARY AGENDA

Day 1: June 12th, Sunday

Theme: Global to local: standards development and application, use cases and feedback

- **Meeting Kickoff:** Local Host: Georgios Kotoulas, GSC President: Lynn Schriml
- **Session 1:** Global and local view on standards
- **Round Table Discussion 1:** Role of Standards and Coordination across in Large Research Projects
- **Keynote 1:** Arianna Broggiato - *The Nagoya Protocol: sampling and research in compliance with new legislations - what scientists have to do*
- **Session 2:** Large Scale Genomics and Microbiome Initiatives
- **Breakout Sessions**
 - Computational Tools, data set harmonization and reproducibility
 - GSC Standards Working Session

Day 2: June 13th, Monday

Theme: Exploring standards across research Initiatives

- **Keynote 2:** Sumir Panji: Standards Initiatives in H3ABioNet
- **Session 3:** Exploring standards across research Initiatives
- **Session 4:** Understanding Standards Needs Across Communities
- **Keynote 3:** Phil Hugenholtz: Genomic taxonomy, from genus to domain.
- **Session 5:** New standards and updates
- **Session 6:** Application and Need for Standards
- **Round Table Discussion 2:** Methods impacting Standards, Need for Standards
- **Breakout Sessions**

- MlxS Compliance and Interoperability Working Group
- NEON-CZ-metadata

Day 3: June 14th, Tuesday

Theme: Local Initiatives and Standards Uptake, GSC 19 and Outreach

- **Keynote 4:** Christos Ouzounis: Microbial Ecology in Greece and Bioinformatics
- **Session 7:** Greek Microbial Ecology
- **Keynote 5:** Daniele Daffonchio - Ecology of microbial hydrocarbon degraders in the oceans
- **Session 8:** Tara, NEON, Fish pathogens and Plant growth promoters
- **Handoff - GSC-19 - Down Under - April 2017 Brisbane, Australia**
- **Session 9:** Introduction to Crete Island Sampling Day - HCMR sampling training

Day 4: June 15th, Wednesday

Theme: GSC-18 Crete Island Sampling Day (ISD)

Crete Island Sampling Day participants.

If you wish to participate (and did not sign up during registration) please email Lynn Schriml (lynn.schriml@gmail.com) or Evangelos Pafilis (pafilis@hcmr.gr).

Participants will form team to collect soil samples at predefined locations across the island of Crete. The sampling routes will involve different types of environments, elevations, types of vegetation and soil types. Sampling sites will include primarily rural outdoor locations. Each sampling team should have sufficient time to collect samples throughout the day and to explore a bit of Crete. We plan to begin sampling early in the morning of June 15th, to maximize our sampling time with the goal of returning all samples in at the HCMR by 6:00 pm. A range of environmental and temporal variables (MlxS metadata standard) will be recorded: habitat, pH, temperature, elevation, adjacent to urban, forested, and agricultural land and in both the berm and backshore.

GSC-18 WORKSHOP DETAILED AGENDA

Day 1: June 12th, Sunday

Theme: **Global to local: development and application, use cases and feedback**

09:00-09:30 **GSC 18 Welcome and Opening talks**

Antonios Magoulas (Director of IMBBC/HCMR): Introduction to IMBBC/HCMR
Georgios Kotoulas (IMBBC/HCMR): Welcome talk
Lynn Schriml (UMB, GSC President): GSC 18 Opening

09:30-11:00 **Session 1**

Global and local views on standards

Chair: Lynn Schriml

- **Guy Cochrane** (EBI/ENA) Data standards: View from a global data resource & **Evangelos Pafilis** (IMBBC/HCMR) Standards promoting and uptake activities at the Hellenic Centre for Marine Research
- **Frank Oliver Glöckner** (MM-MPI, JacobsUni) The Ocean Sampling Day: an example for standardized sampling - worldwide (global) & **Nikolaos Nikolaidis** (TUC): Soil and Water Sustainability Research at the Koiliaris Critical Zone Observatory (local)
- **Neil Davies** (UCB): Genomic Observatories - Moorea IDEA (local project using global standards) & **Manolis Mandalakis** (IMBBC/HCMR): GO Marine monitoring and Air Monitoring stations (local)

11:00-11:30 **Coffee Break**

11:30-12:30 **Round Table Discussion 1**

Title: Role of standards and coordination across in large research projects

Topics: Sharing knowledge, exchanging data, outlining a guide for projects and communities, what is working, what is not ?

Chair: Nikos Kyrpides

Participants: **George Tsiamis** (Uni Patras)

Phil Hugenholtz (ECA)

Hans-Peter Klenk (Uni Newcastle)

Lynn Schriml (UMB)

Guy Cochrane (EBI)

Wiebe Kooistra (SZN)

Suzi Lewis (Berkeley)

12:30-13:30 **Lunch**

13:30-14:00 **Keynote 1**

Chair: Frank Oliver Glöckner

Speaker: **Arianna Broggiato** (MicroB3/OSD legal/ethics expert)

Title: **The Nagoya Protocol: sampling and research in compliance with new legislations - what scientists have to do**

14:00-15:30 **Session 2**

Large Scale Genomics and Microbiome Initiatives

Chair: George Kotoulas

- **Lynn Schriml** (UMB): MetaSUB: Subway Metagenomes: Global City Sampling Day.
- **Simon Claus** (VLIZ): Marine biodiversity standards: a common tool across marine biodiversity data infrastructures
- **Danilo Ercolini** (University of Naples) Food microbiome works and initiatives
- **Wiebe Kooistra** (SZN): Biodiversity in the planktonic diatom family Chaetocerotaceae: a comparison of HTS Metabarcoding and LM based enumeration and culture methods.
- **George Garrity** (SIGS): Standards in Genomic Sciences

15:30-16:00 **Coffee Break**

16:00-16:30 **Group Photo** (Main Entrance)

16:30-17:30 **Breakout Sessions** (sign up sheet is available [here](#))

Breakout Session 1: Computational Tools, data set harmonization and reproducibility

Chair: Folker Meyer

Talks: **Folker Meyer** (ANL): Recent development at MG-RAST

Anastasis Oulas (IMBBC/HCMR): LifeWatch Greece - Greek Biodiversity portal: Analysis and Visualization tools

Rob Finn (EBI): Recent development at EBI

Nikos Kyrpides (JGI): Recent development at JGI

Breakout Session 2: GSC Standards Working Session

Chair: Pelin Yilmaz

Participants:

Nicolas Tsesmetzis (Shell)

Petra ten Hoopen (EBI)

Day 1 Extra Breakout Session Available: Open Topic (Google doc: make a request [here](#))

17:30-18:00 **Breakout Sessions: Report and Discussion**

18:30-20:30 Reception: Buffet at Crete Aquarium

Breakout Session Structure: 2-3 short talks with focus on standards and 15-20 mins discussion for each session.

Breakout Session Discussion: Each session will be followed by presentation to the general meeting of the conclusions and plans from the session chair

Sessions Sign up: Participants can sign up to the breakout groups for each session and participate in the discussions. Our plan is that each session will generate enough material and conclusions for a publication of standards for that topic.

Day 2: June 13th, Monday

Theme: **Exploring standards across research Initiatives - New standards and updates**

09:00-09:15 **Day 2 Announcements, Introduction**

09:15-09:45 **Keynote 2**

Chair: Lynn Schriml
*Speaker: **Sumir Panji** (IDM/Uni Cape Town)*
Title: Standards Initiatives in H3ABioNet

9:45-10:45 **Session 3**

Exploring standards across research Initiatives

Chair: Pelin Yilmaz

- **Pier Luigi Buttigieg** (AWI): Making sure machines can act on your environmental metadata: understanding ontological annotations
- **Petra Ten Hoopen** (EBI/ENA): Plant sample checklist: a transatlantic community effort
- **Scott Tighe**: (Univ. Vermont): ABRF MGRG efforts for producing metagenomics reference standards

10:45-11:15 **Coffee Break**

11:15-12:30 **Session 4**

Understanding Standards Needs Across Communities

Chair: Guy Cochrane

- **Pelin Yilmaz** (MM-MPI): Vocabularies are needed : what do we need to add to MIxS - GSC Outreach
- **Philip Goldstein** (Uni Colorado): eDNA Data Practices for Marine Biogeography
- **Chelsea Carey** (UCR): Development of a layered metadata approach for integrating continental-scale microbial community and environmental datasets.
- **Rob Finn** (EBI): Protein families and Metagenomics

12:30-13:30 **Lunch**

13:30-14:00 **Keynote 3**

Chair: Nikos Kyrpides (JGI)
*Speaker: **Phil Hugenholtz** (ACE)*
Title: Genomic taxonomy, from genus to domain.

14:00-15:30 **Session 5**

New standards and updates

Chair: Frank Oliver Gloeckner

- **Jim Cole** (MSU): GSC Developers: the Year in Review
- **Pelin Yilmaz** (MM-MPI): MixS update, MixS-BE built environment
- **Nicolas Tsesmetzis** (Shell): MixS-HCR: a minimal information standard for hydrocarbon resources
- **Ilene Mizrahi**: Pathogen standards
- **Renzo Kottmann** (MM-MPI): Implementing GSC Standards in MyOSD

15:30-16:00 **Coffee Break**

16:00-17:00 **Session 6**

Application and Need for Standards

Chair: Jim Cole

- **Nikos Kyrpides** (JGI) : Genome standards for uncultured datasets
- **Donovan Parks** (ACE): Assessing, reporting, and improving the quality of draft archaeal and bacterial genomes
- **Claire Nédellec** (INRA): Text-mining and ontologies for a standard description of microorganism habitats

17:00-17:30 **Round Table Discussion 2**

Title: **Methods impacting Standards, Need for Standards**

Chair: George Garrity

Topics: International Microbiome Initiative - GSCs role

How are methods impacting findings, e.g. sampling, extraction, building libraries

Need for Standards for Genomes

Need for Standards in Big Data

Participants: **Suzi Lewis** (Berkeley)

Nikos Kyrpides (JGI)

17:30-18:15 **Breakout Sessions** (sign up is available [here](#))

Breakout Session 3: MIxS Compliance and Interoperability Working Group

Chair: Jim Cole (MSU)

Agenda: this is a Discussion-based session

Topics include: PIC, MAT, ABS extensions to MIxS

Breakout Session 4: NEON-CZ-metadata

Chair: Folker Meyer

Talks: Chelsea Carey

Lee Stanish

Pelin Yilmaz

Day 2 Extra Breakout Session Available: Open Topic (make a request [here](#))

18:15-18:45 **Breakout Sessions: Report and Discussion**

19:30-22:00 **GSC-18 Dinner:** vineyard tour, wine tasting and dinner at Lyrarakis Winery, Alagni, Crete. More information: <http://www.lyrarakis.com/>

Day 3: June 14th, Tuesday

Theme: **Local Initiatives and Standards Uptake, GSC 19 and Outreach**

09:00-09:15 **Day 3 Announcements, Introduction**

09:15-09:45 **Keynote 4**

Chair: George Kotoulas

Speaker: **Christos Ouzounis** (CERTH)

Title: *Microbial Ecology in Greece and Bioinformatics*

09:45-10:45 **Session 7**

Greek Microbial Ecology

Chair: Melanthis Stavroulaki

- **George Tsiamis** (Uni Patras): Microbes in aquatic and natural systems of Greece
- **Anastasis Oulas** (IMBBC/HCMR): Ecosystems physiology of the Kolumbo submerged volcano in the Hellenic volcanic arc
- **Pavlos Pavlidis** (ICS-FORTH): Population genetics analyses on data from metagenomics projects

10:45-11:15 *Coffee Break*

11:15-12:30 **Session 8**

Ocean Microbiome, NEON, Fish pathogens and Plant growth promoters

Chair: Evangelos Pafilis

- **Antonio Fernandez-Guerra** (Jacobs, OSD): Digital expedition to the Ocean Microbiome
- **Lee Stanish** (NEON): The NEON project
- **Pantelis Katharios** (IMBBC/HCMR): Studying unculturable intracellular fish pathogens through mini-metagenome analysis
- **Panagiotis Gkorezis** (UHASSELT): Environmental perspectives of plant growth promoting and xenobiotics degrading bacteria

12:30-13:30 **Lunch**

13:30-14:00 **Keynote 5**

Chair: Georgios Kotoulas

Speaker: **Daniele Daffonchio** (KAUST)

Title: *Ecology of microbial hydrocarbon degraders in the oceans*

14:00-14:30 GSC 19 Handoff -- Meeting Closing

Handoff - GSC-19 - Down Under - April 2017 Brisbane, Australia

Chair: Lynn Schriml

GSC-19 Local Organizer: **Phil Hugenholtz** (ACE)

Venue: **Australian Centre for Ecogenomics**

Themes: Genome Tree-Reconciled Taxonomy

Engaging local (Australia, NZ) genomics researchers

Education and outreach component

Sampling Down Under

14:30-15:00 **Coffee Break**

15:00 - 16:00 Session 9

Introduction to Crete Island Sampling Day (ISD) - HCMR sampling training

In this session, we will outline the planned sampling event, form teams, discuss the standardized metadata we will collect and handout sampling kits.

Chair: Lynn Schriml and Evangelos Pafilis

[10 minutes each]

- **Lynn Schriml** (UMB): Introduction to ISD, objectives/strategy. Post-GSC18 sequencing and analysis & **Evangelos Pafilis** (IMBBC/HCMR), **Melanthia Stavroulaki** (IMBBC/HCMR): Sampling Routes for participants on Day 4, Logistics
- **Pier Luigi Buttigieg** (AWI): Sampling Options expressed as Environment Ontology: habitat types, metadata terms
- **Dimitra Manou** (AUTH/HCMR): GSC18/ISD - Nagoya Protocol Application

Discussion: GSC 18 sampling event and follow-up publication

Moderators: Lynn Schriml and Evangelos Pafilis

- Sampling Teams
- Present supporting material
- Crete maps, sampling site locations, transect ideas
- Audience Ideas, Questions and Discussion

16:30- Knossos Minoan Palace Excursion / Heraklion Visit - Optional, Sign up upon arrival, options, costs

GSC-18 SAMPLING DAY

Day 4: June 15th, Wednesday

GSC-18 Crete Island Sampling Day (ISD): Crete soil metagenome sampling event

Participants will follow predefined routes across different types of environments for swab and water sampling. Sites at different levels of elevations with different types of vegetation, different soil types, urban/rural, and indoors/outdoors will be explored.

A range of environmental will be recorded: habitat, pH, temperature, elevation, proximity to urban, forested, and agricultural land. Sampling kits, light snacks, and beverages will be provided. Each team will be provided with a cooler and dry ice to store the samples during the day.

Bring your smartphones (for GPS)

Start time is up to each group, we suggest starting by 8:00 am, earlier for groups sampling locations on the west and east coasts of Crete.

08:00-09:00 Teams meet up and depart for sampling

Sample collection

Enjoy lunch while you are out sampling. Bring a swimsuit if you will have time and be near a beach.

16:00-18:00 -- Return Samples and metadata data sheets to the HCMR by 6:00 pm

Post-sampling metadata proof-read and cross check