

Memorandum of Understanding  
(ref. ISR1712024)

between the

**INTERNATIONAL SOIL CARBON NETWORK  
(ISCN)**

and

**ISRIC – WORLD SOIL INFORMATION  
(ISRIC)**

on

**COLLABORATION IN THE FIELDS OF SOIL INFORMATION, SOIL DATABASES AND  
ASSESSMENTS OF  
GLOBAL AND REGIONAL SOIL CARBON STOCKS**

#### **Preamble**

The International Soil Carbon Network (ISCN) and ISRIC - World Soil Information (hereafter referred to as ISRIC) welcome the opportunity for collaboration and hope that it signals the start of long-term synergistic collaborations between ISRIC and ISCN with the aim of sharing quality-assessed soil data with the wider community.

ISCN is a scientific community devoted to the advancement of soil carbon research. ISCN members contribute to a community-driven soil carbon database and use available data to prepare scientific papers and large-scale syntheses.

ISRIC has a mission to serve the international community as custodian of global soil information. ISRIC facilitates the global science community so that it can contribute to solving challenges including food production, climate change, land and water management, environmental quality, social justice, land use planning and biodiversity. ISRIC is the World Data Centre for Soils, a regular member of the International Council for Science (ICSU) World Data System (WDS).

## **1. General cooperation**

- 1.1. To build a reciprocal and mutually reinforcing relationship, in particular in the development, display and application of spatially referenced data and information about soil resources, their management and conservation, with special attention for soil carbon research.
- 1.2. To work together in joint programmes. Thus, to jointly play a more effective role in promoting the use of global soil and terrain information, electronic display and inter-communication between databases, and applications of natural resources data related to the assessment, monitoring and sustainable development of the world's soil resources.
- 1.3. ISRIC undertakes to give priority in its activities to joint programmes and partnerships, providing integrated soil, land and water information and research services, alone or with others, costed at the ISRIC internal institutional rate, being a not-for-profit organisation.
- 1.4. ISCN undertakes to call upon ISRIC as a leading partner for such services and to use its own offices to facilitate the execution of joint programmes, whether managed by ISRIC or ISCN, including possible financing through third parties.

## **2. Plan of work**

This Memorandum of Understanding implies no financial commitment by either party. However, periodically and not less than once every two years, the parties will develop a plan of work outlining specific areas of cooperation.

The plan of work for 2017-2018 is attached as Annex 1.

ISCN and ISRIC will regularly review the technical work and products under development and meet regularly (mainly by Skype), at least annually, to exchange ideas and information, discuss the work progress, and possibilities of further collaboration including jointly organised events such as technical workshops or seminars, and to seek funding for joint programmes.

### 3. Intellectual property rights

Intellectual property rights, in particular copyright of material such as statistical information, software and maps, made available by ISCN or ISRIC to be used to carry out the activities under this Memorandum of Understanding shall remain with the originating party, which grants the other party the right to use them for the specific purposes of the activities and only under the conditions stipulated in this Memorandum of Understanding, unless separately negotiated and agreed.

Copyright of the information, as well as rights to any other intellectual property, developed under the framework of this Memorandum of Understanding by ISCN or ISRIC separately, shall be vested in that party. The other party will be granted a license to use such intellectual property for all purposes compatible with the objectives of the Memorandum of Understanding and the data policies of ISCN and ISRIC:

- ISCN: <https://iscn.fluxdata.org/data/dataset-information/data-policy/>
- ISRIC: <http://www.isric.org/about/data-policy>

### 4. Final provisions

Fulfilment of the operational responsibilities (timing) set forth in this Memorandum of Understanding shall be subject to the availability of resources.

This Memorandum of Understanding and any dispute arising there from shall be governed by the general principles of law, to the exclusion of any national system of law.

Any dispute between the parties concerning the interpretation and the execution of this MOU, if not settled by negotiation between the parties or by another agreed mode of settlement will, at the request of either party, be submitted to one conciliator.

This Memorandum of Understanding will be reviewed periodically by the parties and may be modified in writing upon their mutual consent.

The parties may terminate this Memorandum of Understanding at a jointly agreed time or by one party giving three months' notice in writing to the other party. Such termination will be without prejudice to outstanding obligations. Upon termination of this Memorandum of Understanding each partner will retain the right to use the jointly vested intellectual property developed under the Memorandum of Understanding.

This Memorandum of Understanding shall enter into force upon the date of the last signature of either ISCN or ISRIC.

Dr Jennifer Harden  
Scientific Steering Group Chair,



On behalf of the International Soil  
Carbon Network (ISCN)

Ir Rik van den Bosch  
Director,



On behalf of ISRIC – World Soil  
Information

Date:         june 7, 2017        

Date:         19/5/17

## **Annex 1: Plan of work 2017-2018**

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### **1) Hosting and serving 'ISRIC-ISCN' data via WoSIS/SoilGrids framework**

- Signing Memorandum of Understanding (ISRIC/ISCN) Month 1 (M1) <sup>[1]</sup>.
- Import full ISCN generation 3 (GN3) dataset 'as is' into the ISRIC WDC-Soils data repository, in PostgreSQL format); the constituent datasets (45 in total) will be imported by ISRIC as separate datasets with the prefix ISCN\_XXXXX (M2).
- Import constituent ISCN GN3 datasets into the WoSIS PostgreSQL data model (M3).
- Standardization and QA/QC in accord with the WoSIS workflow for the selection of soil properties described in Batjes<sup>[2]</sup> et al. (2017, Table 1) (M4-M5).
- ISRIC-ISCN specific tasks: Computation of SOC content (kg C m<sup>-2</sup> to given standard depths; 0-30, 0-50, 0-100 and 0-200 cm, as appropriate for each soil profile) and stocks (Pg C) using a globally consistent procedure (implemented via the SoilGrids framework) (M6-M8).
- Distribute the newly derived SOC contents (kg C m<sup>-2</sup> to given depths) by profile via WFS as an ISRIC-ISCN dataset. Where possible, add the full complement of the 'original ISCN-GN3' data for each point. All data will be distributed in interchangeable formats with metadata (M9).
- Prepare co-authored manuscript for above (M9-M10).
- Submit manuscript to a peer-reviewed Journal, for example *Earth System Science Data* (M11).

### **2) Expanding ISCN holdings**

- New data submissions to the ISCN dataset (for later consideration in WoSIS database) should follow the same template as the present one, with special attention to not include repeated profiles; first 'cleaning' of such datasets at ISCN.

- Either annually or when some 1000 new soil profiles are available, ISCN<sup>[3]</sup> will send the corresponding files to ISRIC for further processing into WoSIS as described above.
- This means that, in principle, regular updates (WFS and snapshots) may be generated for the ISCN-ISRIC set, each with their own DOI/paper, in the future.

### 3) Increasing 'visibility' of ISCN-GN3 dataset

To publicize the new ISCN-ISRIC collaboration, pending completion of the more demanding Task 1, ISRIC offers to publicize the ISCN GN3 dataset via its Soil Data Hub (GeoNode). For this, the ISCN GN3 dataset will be converted to an interchangeable format (e.g. TXT) with reference to the original documentation on the ISCN website, with point locations displayed in GeoNode. ISCN is to provide the necessary metadata for this product.

Completion (M2).

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- [1] Months are indicative only, subject to urgency of other externally-funded tasks.  
[2] <http://www.earth-syst-sci-data.net/9/1/2017/>  
[3] Contact at ISCN: Luke Nave (lukenave@umich.edu) respectively his successors Katherine Todd-Brown (ISCN data coordinator; katherine.todd-brown@pnnl.gov) or Avni Malhotra (ISCN general coordinator; malhotraa@ornl.gov).

