Complementary ObsPack Data Products: A new way to think about cooperative data products

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Talk Outline

1. Background

2. ObsPack

3. Complementary Products

4. What’s next?
GLOBALVIEW-CO$_2$ Data Products (no actual data)

Updated annually since 1996

ESRL (United States)
CSIRO (Australia)
NIES (Japan)
EC (Canada)
LSCE (France)
SIO (United States)
NCAR (United States)
MPI-BGC (Germany)
HMS (Hungary)
JMA (Japan)
UBA/UHEI-IUP (Germany)
FMI (Finland)
SEES (Republic of Korea)
SAWS (South Africa)
FNRA/DNA (Italy/Argentina)
NIWA (New Zealand)
IPEN (Brazil)
IOS (Canada)
IMAS (Italy)
ENEA (Italy)
CMA (P.R. of China)
AEMET (Spain)
GLOBALVIEW\(-\text{CO}_2\) Distribution

- Anonymous FTP Distribution

→ Who were using products?

→ How were they using products?

... often learned after work published
GLOBALVIEW-CO₂ FTP Statistics (by month)

• 17,000+ downloads

○ 170+ Citations (Web of Science)
○ 600+ Results from Google Scholar
Modeling capabilities improved
Motivation for the development of a new kind of product

Data users ...

“We want data, actual data, and lots of it!”

Data providers ...

“We want to know who is using our data and how, and to be appropriately acknowledged for our contribution.”
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What is ObsPack (Observation Package)?

Description: Masarie et al., 2014; (http://dx.doi.org/10.5194/essd-6-375-2014)

- **A Framework for packaging data**
  - Expand metadata (including scale(s), comparison activity, and source attribution)
  - Improve communication between product user and data providers
  - Better track product distribution, use, and citation
  - Utilize unambiguous identification protocol (citation + DOI)

- **Current ObsPack Products (www.esrl.noaa.gov/gmd/ccgg/obspack/)**
  - GLOBALVIEW (does not include actual data)
  - GLOBALVIEWplus (includes actual data)
ObsPack Citation
(ex) GLOBALVIEWplus


(pre-ObsPack GLOBALVIEW citation)

GLOBALVIEW-CO2: Cooperative Atmospheric Data Integration Project – Carbon Dioxide. CD-ROM, NOAA ESRL, Boulder, Colorado [Also available on Internet via anonymous FTP to aftp.cmdl.noaa.gov, Path: products/globalview/co2], 2012.
These cooperative data products are made freely available to the scientific community and are intended to stimulate and support carbon cycle modeling studies. We rely on the ethics and integrity of the user to assure that each contributing national and university laboratory receives fair credit for their work. Your use of an ObsPack data product implies an agreement to contact each contributing laboratory to discuss the nature of the work and the appropriate level of acknowledgement. If an ObsPack data product is essential to the work, or if an important result or conclusion depends on an ObsPack product, co-authorship may be appropriate. This should be discussed with each data provider early in the work. ObsPack data products must be obtained directly from the ObsPack Data Portal at www.esrl.noaa.gov/gmd/ccgg/obspack/ and may not be re-distributed.

Beginning November 2013, all new ObsPack data products will have a unique Digital Object Identifier (DOI) registered with the International DOI Foundation. In addition to the conditions of fair use as stated above, users must also include the ObsPack product citation in any publication or presentation using the product. The required citation is included in every data product and in the automated e-mail sent to the user during product download.

**WDCGG:** On any publication using data from the individual station, the author must contact the data submitters concerning co-authorship or acknowledgments, and make proper descriptions on the data sources in their references.

**If you use an ObsPack data product, you must contact the data providers. Contacting the data providers is not optional.**

**In addition to the conditions of fair use as stated above, users must also include the ObsPack product citation in any publication or presentation using the product.**
ObsPack Distribution

Trying to improve communication and tracking usage

**ATTENTION!** When you download a data product, an automatic e-mail containing your contact information will be sent to contributing data providers. When you download a minor revision to a product you have previously downloaded, data providers will NOT be contacted. The ObsPack version numbering scheme is described [here](http://www.esrl.noaa.gov/gmd/ccgg/obspack).

Please **DO NOT** re-distribute this product. It is freely available to all users from this site.

Please complete the form below and press "Submit". You will receive an immediate, automated e-mail with access instructions.

### Product Information

- **Product Name**: obspack_co2_1_GLOBALVIEWplus_v1.0_2015-07-30
- **Package File Format**: Zip file, Gzipped tar file

### Contact Information

- **Name**: Wouter Peters
- **Organization**: Wageningen University, the Netherlands
- **Email Address**: wouter.peters@wur.nl
- **Intended Use**: Research - Inverse Modeling

* Why your contact information is important.

Submit

[http://www.esrl.noaa.gov/gmd/ccgg/obspack](http://www.esrl.noaa.gov/gmd/ccgg/obspack)
Email to product user

Dear Wouter Peters,

Thank you for your interest in an ObsPack data product. By downloading obspack_co2_1_GLOBALVIEWplus_v1.0_2015-07-30 on 2015-08-05, you have agreed to the conditions of the ObsPack Fair Use Statement. For your convenience, we have included the ObsPack Fair Use Statement, the required citation, and the complete e-mail list of data providers below. Thank you for being respectful of the ObsPack Data Policy.

ObsPack Fair Use Statement:

... 

Required Citation for obspack_co2_1_GLOBALVIEWplus_v1.0_2015-07-30:

... 

E-mail List of Data Providers:

Michel.Ramonet@lsce.ipsl.fr, ed.dlugokencky@noaa.gov, e.gloor@leeds.ac.uk, mon@m.tohoku.ac.jp, Casper.Labuschagne@weathersa.co.za, benoit.wastine@lsce.ipsl.fr, ingeborg.levin@iup.uni-heidelberg.de, ...

Email to all data providers

A copy of the ObsPack data product obspack_co2_1_GLOBALVIEWplus_v1.0_2015-07-30 was requested by Wouter Peters, Wageningen University, the Netherlands on Wed, 05 Aug 2015 19:19:12 -0700.

Name: Wouter Peters
Organization: Wageningen University, the Netherlands
Email Address: wouter.peters@wur.nl
Product ID: obspack_co2_1_GLOBALVIEWplus_v1.0_2015-07-30
Download Date: 2015-08-05
Intended Use: Research- Inverse Modeling
Most Recent Product – GLOBALVIEWplus

Best strategy moving forward?

Features
- Comprehensive multi-laboratory product
- 25 laboratories from 16 countries
- 205 data sets including actual data (1967-2014)
- Extensive metadata
- Most original data “pass through”
- Citation with DOI
- NOAA ObsPack portal
- http://doi.org/10.15138/G3RP42
- 40+ downloads since July 30, 2015

Challenges
- Comprehensive multi-laboratory product
- Considerable effort
- Proper representation of data and metadata
- Revisions require entire product update (QC)
- Actual data distributed by NOAA (not ideal)
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3. Complementary Products
4. What’s next?
Complementary ObsPack Products
Smaller products comprised of data from one or a few laboratories

Advantages
- Improves maneuverability and flexibility
- Measurement labs prepare/distribute their own data products
- Data owners better able to guarantee data and metadata
- Labs can more easily update products containing their own data
- WDCGG may provide capability for labs not able or interested

Challenges
- Products must be fully compatible
- Coordination among ObsPack developers and producers
- Data preparation fully described
- Metadata are ISO-compliant
- Product Discovery?
- Distribution?
- Merging?
- Citation?
Discovery of complementary products?

An ObsPack Portal

ObsPack Products

ICOS
WDCGG
NIES
NOAA
CSIRO

Conceptual
Distribution of complementary products?

Distributed or Central Access

ICOS
WDCGG
NIES
NOAA
CSIRO

Conceptual
Merging Complementary ObsPack Products

Must be fully compatible – no duplication, ambiguity, inconsistency

Challenges

- Who or what will merge products?
- ObsPack portal could provide merging tool (Python, R, IDL, Perl)

Conceptual
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What’s Next?

- Items on to-do list:
  - consistent expression of uncertainty
  - consistent strategy for describing sample influence (selection)
  - ISO-compliant metadata

- NOAA will continue phase-in of FTP data distribution using ObsPack Framework

- ICOS will create ObsPack products comprised of ICOS Data

- WDCGG will explore feasibility of serving data using ObsPack Framework (in addition to the historic WDCGG format)

- NIES/CGER will consider producing ObsPack Products of NIES data

- Create a Cooperative Data Product Working Group to coordinate continued development; recommend protocols and strategies
Thank You