

Telemeta

An open and collaborative web audio platform for digital sound archive management

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Ecology and Acoustics 1st Symposium - 16/06/2014

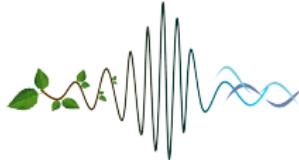


Table of contents

1 Overview

- Goals
- History
- Sound archives of the CREM / CNRS
- Usecases

2 Framework

- Technologies
- Architecture
- Features
- Data model
- User Interfaces

3 Related projects

- TimeSide
- SABIOD
- DIADEMS

4 Development

Main goals



- Archive, **preserve** and **scale** big audio data and related metadata
- Process audio data **on demand** through a **modular architecture**
- Play audio data and **read** metadata **synchronously**
- Index and **share** music data through a **collaborative** web app
- Link audio data to various **ontologies**, external **services** and related **medias** (photos, videos, etc)
- Manage users, share and access rules, copyrights easily through time

History of the project

- 2006: definition of the goals (open source web audio collaborative platform)
- 2007: first partner: french Research Center of Ethnomusicology (CREM)
- 2007 - 2009: technical specifications, definition of the DB migrator
- 2008: prototype development
- 2008 - 2010: workflow and format specifications
- 2011: development, final migration and release of Telemeta 1.0 to the CREM for production : <http://archives.crem-cnrs.fr>
- 2011 - 2014: collaborative indexing, more development, massive data imports...

CREM's platform

 Recherche

Bienvenue, Guillaume Pellerin | Profil | Aide | Déconnexion

Bureau Archives Géo-Navigateur Recherche avancée Utilisateurs Admin

Archives sonores du CNRS - Musée de l'Homme

Le fonds d'archives sonores du CNRS - Musée de l'Homme rassemble des enregistrements inédits et publiés de musique et de traditions orales du monde entier, de 1900 à nos jours. Constitué de supports variés (cylindres, 78 tours, disques vinyles, cassettes, supports numériques), ce fonds se positionne parmi les plus importants d'Europe en terme de qualité, de quantité et de diversité.

Pour une présentation historique du fonds, voir [le site du CREM](#).



Contenu

Géré par le [Centre de Recherche en Ethnomusicologie \(CREM\)](#) cette base de données répertorie :

- ✓ Plus de 30 000 documents inédits, dont les 2/3 sont sonorisés, répartie dans plus de 1 000 collections, représentant près de 4 000 heures d'enregistrements de terrain non publiés.
- ✓ Plus de 13 000 enregistrements édités, dont 3 000 sonorisés, dans plus de 4 600 collections, pour environ 3 700 heures (incluant plus de 5 000 disques dont beaucoup sont très rares).
- ✓ 199 pays sont représentés à travers plus de 1 200 groupes ethniques ou sociaux, donnant à entendre une large palette d'expressions musicales et chantées, de langues et de dialectes.

Certains enregistrements sont consultables avec un code d'accès. Pour l'obtenir écrivez à [crem.lesc\(at\)mae.u-paris10.fr](mailto:crem.lesc(at)mae.u-paris10.fr) en expliquant les motifs de votre demande. Le fonds d'archives est également consultable sur les postes dédiés disponibles au [CREM](#), à la [Bibliothèque Eric de Dampierre](#), à la [Médiathèque du Musée du Quai Branly](#) et à la [Bibliothèque du Muséum National d'Histoire Naturelle](#).

Organisation du catalogue

Le catalogue est organisé en 4 niveaux : Fonds, Corpus, Collection et Items. Le niveau principal de description est la Collection. Chacune regroupe un ensemble cohérent de fichiers audio (items) correspondant le plus souvent à des enregistrements collectés au cours d'une même mission de recherche ou à un disque publié. Certaines collections sont elles-mêmes regroupées en corpus et en fonds associés à des collecteurs.

Le nombre d'enregistrements mis en ligne sur la plateforme est en constante augmentation. Les fiches descriptives sont renseignées de manière collaborative par les usagers de la plateforme : chercheurs, étudiants, documentalistes.

Le CREM accueille toutes les collaborations visant à enrichir et valoriser ce précieux patrimoine. Ecrivez-nous à [crem.lesc\(at\)mae.u-paris10.fr](mailto:crem.lesc(at)mae.u-paris10.fr).

Sélection musicale

Danse des Nekrakaroré - Indiens kayapo-Kubenkränken (Face B_02)
Brésil, Amérique du Sud, Amérique

00:00 00:30 01:00

Waveform spectral

CREM-CNRS - Item : CNRSH_E_1973_001_001_001_08 Telemeta powered

Géo-Navigateur

Google Maps API v3 ©2012 Google Inc. All Rights Reserved

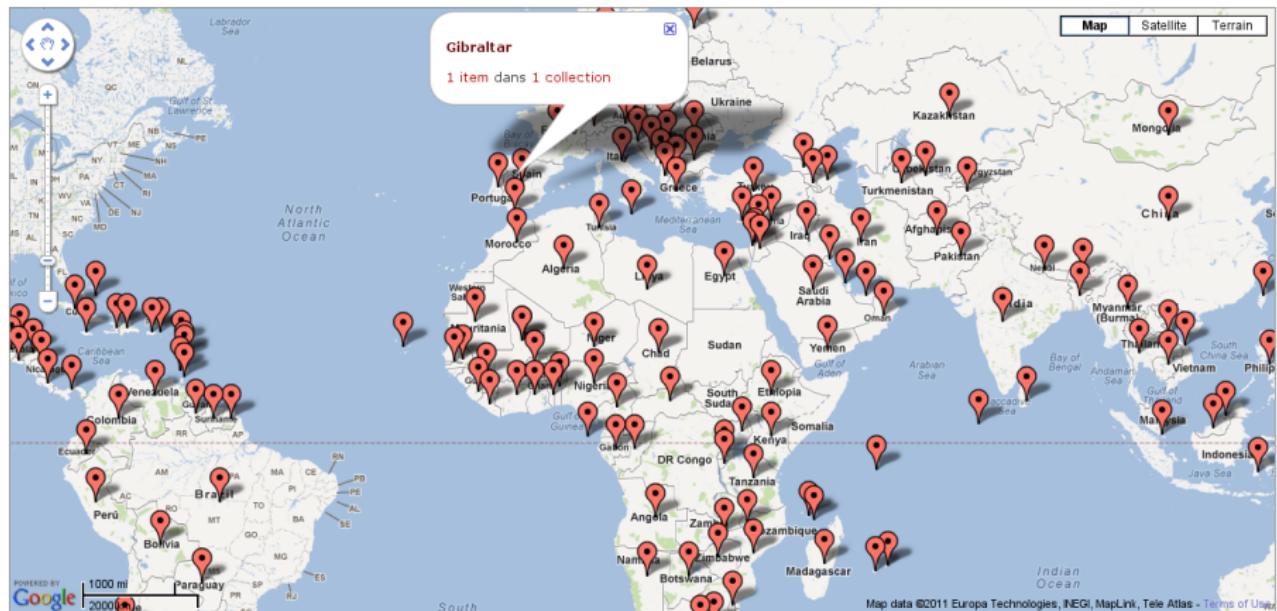
Dernières modifications

13 juin Rituel Gélédé et masques item a.julien

CREM's Geo-navigator

Navigateur géographique

Carte | Liste



Extend the usecases

Usages

- **Research** and **share** audio data and collaborate online and with other researchers or communities.
- **Teach** with music and audio materials for lessons, academic works and exams.
- **Publish** documented audio ressources from interactive kiosks (full access given to IP ranges)

Domains

- Musicology
- Anthropology
- Museology
- Computer science
- Biology
- Ecology

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- User Interfaces

3 Related projects

- TimeSide
- SABIOD
- DIADEMS

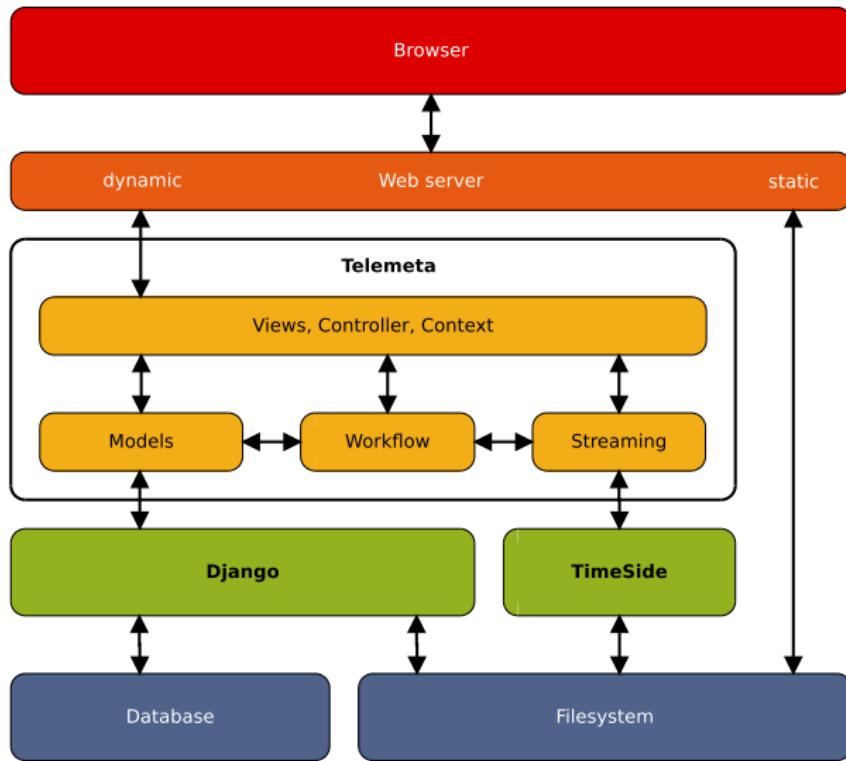
4 Development

Technologies

100% Open Source!

- Python : cool and smart object oriented language
- Django : high-level web MVC framework
- GStreamer : open source multimedia framework
- TimeSide : open web audio processing framework
- MySQL, PostgreSQL, others : relational databases
- GNU / Linux : applications, libraries and kernel

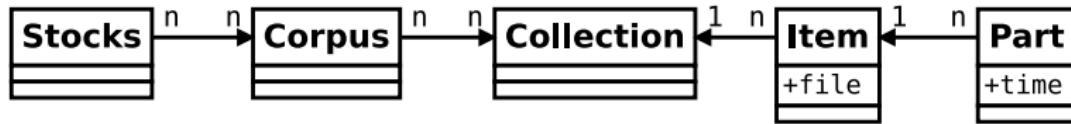
Architecture



Key features

- Pure HTML5 web user interface including dynamical forms and smart workflows
- On the fly audio analyzing, transcoding and metadata embedding in various formats
- Social editing with semantic ontologies, smart workflows, realtime tools, human or automatic annotations and segmentations
- User management with individual desk, playlists, profiles and access rights
- High level search engine (geolocation, instruments, ethnic groups, etc...)
- Data providers : DublinCore, OAI-PMH, RSS, XML, JSON and other
- Multi-language support (now english and french)

Data model



Other objects

- Instrument, InstrumentAlias, InstrumentRelation, InstrumentAliasRelation, Performance
- Location, LocationAlias, LocationRelation, LocationAliasRelation
- EthnicGroup, Format, PhysicalFormat, Publisher and various other Enumarations (1D lists)
- Language (ISO 639-3)
- Revision, PlayList, Profile, etc...

All objects

[view online PDF](#)

Web User Interface

 Search

Welcome, Guillaume Pellerin | Profile | Help | Sign out

Desk Archives Geo Navigator Advanced search Users Admin

Item : LAMENTATIONS ET CHANTS D'AMOUR* :03-08

Edit Copy Add to playlist
 Previous Next



Title	LAMENTATIONS ET CHANTS D'AMOUR*
Collector	
Collection	CNRSMH_I_1976_011
Recording date	Jan. 1, 1900 - Dec. 31, 1900
Last modification	July 7, 2011, 12:51 p.m. (j.simonnot)

Geographic and cultural informations

Location	Algérie, Afrique septentrionale, Afrique
Location details	Stèpe, Hauts Plateaux
Cultural area	OULED NAYAL
Language	arabe
Population / social group	Arabe
Ethnographic context	

Musical informations

Analysis	Markers
1 00:00:06.29	Lamentation
author: j.simonnot	
2 00:00:44.63	chant d'imposition du
adressé au marié.	
Traduction:L'imposition de ton henné est ma plus	
author: j.simonnot	
3 00:01:15.04	Ayay
Chant non mesuré	
author: j.simonnot	

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TimeSide : open web audio processing framework

Server side - TimeSide Engine

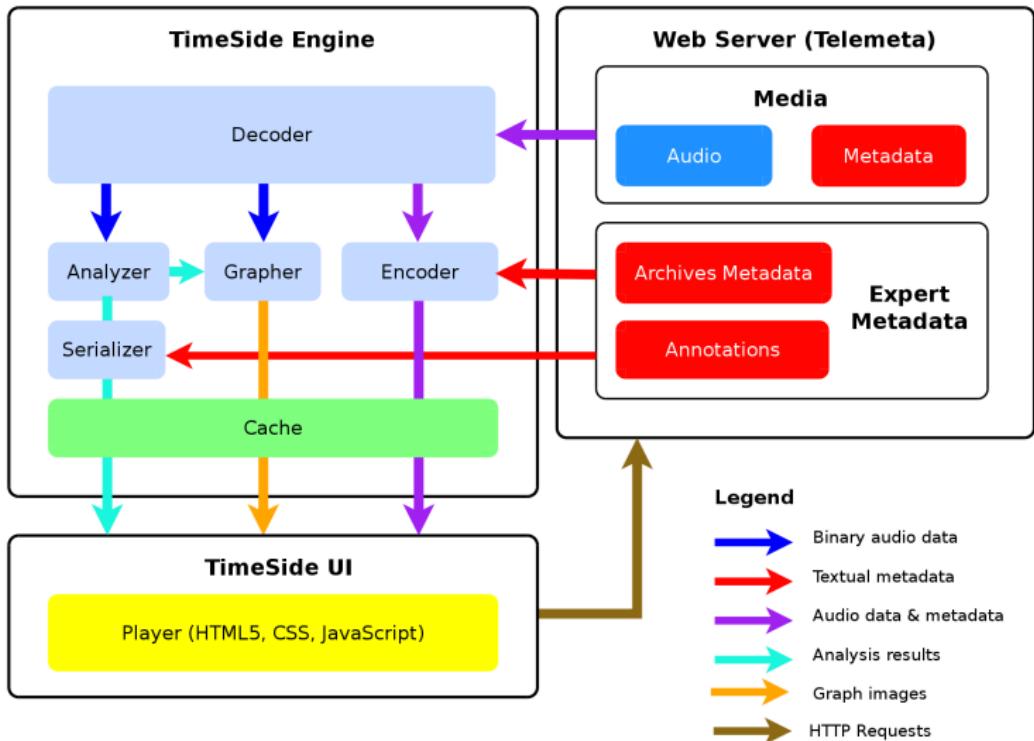
- **Do** asynchronous and fast audio processing with Python,
- **Decode** audio frames from ANY format into numpy arrays,
- **Analyze** audio content with state-of-the-art audio feature extraction libraries (Aubio, Yaafe, Vamp (experimental)),
- **Organize**, serialize and save analysis metadata through various formats,
- **Draw** various fancy waveforms, spectrograms and other cool graphers,
- **Transcode** audio data in various media formats and stream them through web apps,

Client side - TimeSide UI

- **Playback** and **interact** on demand through a smart high-level HTML5 extensible player,
- **Index**, **tag** and **organize semantic metadata**
(see [Telemeta](#) which embeds TimeSide).



TimeSide - Architecture



SABIOD: Scaled Acoustic Biodiversity (prototype)

 Search

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SABIOD - Scaled Acoustic BIODiversity platform

Bioacoustic signaling is a primary mode of communication and exploration for most of the animals. It enables quick load and transfer of information without any visible contact with the target, tailoring the reduced visibility of deep forest (insect, frogs, birds, mammals...), cave or night activities (insects, bats), and/or the long distances like in ocean (krill, fishes, whales...). Bioacoustics is also one of the factors in optimizing natural selection, playing a significant role in signalling resource qualities to potential partners.

The SABIOD project aims to detect, cluster, classify and index bioacoustic big data in various ecosystems, at different space and time scales, in order to reveal informations on the complex sensori-motor loop, and on the health of an ecosystem, yielding to new biodiversity insights.

Keywords : Acoustics, Signal Analysis, Machine Learning



NEWS

- International Workshop on Neural Information Scaled to Bioacoustics (joint to NIPS 2013) 10th dec - deadline ext. abstract 13th oct.
- IEEE ATSP'14 last CFP - Special session on Bioacoustics Int. conf. on Ad. Tech. for Signal & Image Processing

The Telemeta Platform

The collaborative platform **Telemeta** aims to make sound archives available to researchers and to the extent possible, the public, in compliance with the intellectual and moral rights of collectors. Developed with the support of the program **TGE-Adonis** of the **CNRS**, allows researchers to exchange data online with communities, including through collaborative tools

like markers , spaces, comments, etc...

CREDITS

SABIOD is a **CNRS** Big Data Interdisciplinary project: 2012-2014

Laboratories : LSIS, LIP6, CNPS, MNHN, LIG, Géoazur



Sounds selection



Last changes

Date	Title	Type	User
Jan. 22, 2014, 11:23 p.m.	Chaffinch call	marker	t.fillon
Jan. 22, 2014, 11:23 p.m.	Chaffinch call	marker	t.fillon
Jan. 22, 2014, 11:23 p.m.	Chaffinch call	marker	t.fillon
Jan. 22, 2014, 11:23 p.m.	Chaffinch call	marker	t.fillon
Jan. 22, 2014, 11:23 p.m.	Chaffinch call	marker	t.fillon
Jan. 22, 2014, 11:22 p.m.	Chaffinch call	marker	t.fillon
Jan. 22, 2014, 11:22 p.m.	Chaffinch call	marker	t.fillon
Jan. 22, 2014, 11:22 p.m.	Chaffinch call	marker	t.fillon



SABIOD: Scaled Acoustic Biodiversity (prototype)

 Search

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Desk Archives Geo Navigator Advanced search Admin

Item : data-20120421_085357_pinson_arbre_cri_contact

Edit Copy Add to playlist
 Previous Next



Title data-20120421_085357_pinson_arbre_cri_contact

Collector

Collection SABIOD_Port-Cros

Recording date April 20, 2012 - April 23, 2012

Geographic and cultural informations

Location

Population / social group

Ethnographic context

Musical informations

Number Composition Vernacular name Interprets

Archiving data

Analysis	Markers
	1 00:00:29 cri author: admin
	2 00:00:21 Chaffinch call Pinson des arbres author: admin

SABIOD: Scaled Acoustic Biodiversity (prototype)

This repository Search or type a command Explore Gist Blog Help

yomguy Unwatch Star Fork

PUBLIC yomguy / django-phylogeny forked from pombredanne/django-phylogeny

Django Phylogeny is an app for working with phylogenetic trees in the Django web development framework.
<http://github.com/randalmorey/django-phylogeny> — Edit

186 commits 3 branches 10 releases 2 contributors

branch: master django-phylogeny / +

This branch is 0 commits ahead and 0 commits behind master

add initial migration

yomguy authored on 4 Dec 2013 latest commit d30eb2e55a

phylogeny add initial migration 6 months ago

AUTHORS added package files 3 years ago

CHANGELOG.md added change notes to changelog 3 years ago

INSTALL clarified description of optional django-colors app in the install pa... 3 years ago

LICENSE added package files 3 years ago

MANIFEST.in added package files 3 years ago

README.md added mention of optional django-colors app to readme.md 3 years ago

setup.py added package files 3 years ago

README.md

Django Phylogeny

Code Pull Requests Wiki Pulse Graphs Network Settings

SSH clone URL git@github.com:yomguy/django-phylogeny You can clone with HTTPS, SSH, or Subversion.

Download ZIP

The DIADEMS project

- **DIADEMS** : Description, Indexation, Access to Sound and Ethnomusicological Documents
- Granted by ANR : french national research agency (ANR-12-CORD-0022)
- 3 years, 8 partners, 850 k€
- Apply and test MIR algorithms on large scale ethnomusicological data
- Define some high level interfaces to find new ways of explorations in large complex musical corpus
- New modes of collaboration between human science and computer science laboratories and researchers
- Define the **vocabulary** describing musical events in the usecase of ethnomusicology vs. signal processing
- <http://www.irit.fr/recherches/SAMOVA/DIADEMS/fr/welcome/>
- <http://diadems.telemeta.org>

DIADEMS - Partners

- Sponsors:

- CNRS
- Huma-Num (ex TGE Adonis)
- ANR
- CREM
- UPMC
- Parisson

- Partners :

- IRIT (université Paul Sabatier, Toulouse 3)
- LIMSI (universités Pierre et Marie Curie (UPMC, Paris 6) et Paris-Sud)
- LAM (institut Jean Le Rond d'Alembert, UPMC)
- LABRI (université de Bordeaux)
- CREM (université Paris Ouest Nanterre La Défense)
- LESC (université Paris Ouest Nanterre La Défense)
- Museum d'Histoire Naturelle de Paris
- Musée du Quai Branly



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4 Development

Development board

Links

- <http://telemeta.org>
- <https://github.com/yomguy/Telemeta/>
- <https://github.com/yomguy/TimeSide/>
- <https://github.com/Parisson/Telemeta-doc/>

Team

- Guillaume Pellerin
- Thomas Fillon
- Paul Brossier
- Riccardo Zaccarelli
- Maxime Lecoz
- David Doukan

Development - Lessons

Lessons from a 7 year old project

- Simplicity is better than complexity (KISS principle)
- Modularity is only accessible with a flexible language (thanks Python!)
- Models and Objects are more important than Technologies
- A good workflow is defined by the users themselves through feedback and constant revisions
- Prototyping is a crucial part of the development process
- A good platform relies on standards, not on formats
- The Open Source ecosystem gives some **tremendous** possibilities to develop, deploy and scale any platform project

Development - TODO list

Telemeta

- Update code to support Django new Class based views
- Rewrite geolocation services
- Public and enhanced user playlists
- Smart breadcrumbs
- Better interactions with TimeSide
- Enhance user interface (full HTML 5 + web audio API)
 - For annotations and segmentations in a collaborative manner
 - Provide import capabilities and feedback loop between manual and automatic annotations
 - Fancy displays of automatic analysis results (zoomable + synchronized with audio)
 - Add a User interface to control and tune the analysis parameters
- More documentation
- [http://telemeta.org/report/1](http://telemeta.org/report/)

Development - TODO list

TimeSide

- Tiny web server based on Django (done)
- Process task manager (done)
- Full HTML5 zooming player (+ annotations, segmentations, etc..)
- Analyzer parameters (+ interface)
- Improve Vamp plugins support (Vamp python host ?)
- Add more automatic segmentation and classification tools to support various semantic ontologies (cf. thesaurus)
- Add more music analysis tools to support Ethnomusicological research
- Add automatic similarity analysis tools (inside a song or between sound items)
- Enhance analysis result displays to send to Telemeta
- <https://github.com/yomguy/TimeSide/issues>

Development - TODO list

SABIOD

- Automatic synchronization from hardware audio source
- Add bioacoustic detection models to TimeSide (bats, dolphins, whales, etc...)
- Add various bio taxonomies to Telemeta
- Extend audio sampling frequencies

The End

Thank you!

We are looking for new collaborations
in ecology and bioacoustic fields. Let's keep in touch!

Links

- telemeta.org
- [@telemeta](https://twitter.com/@telemeta)

Contact me

- guillaume@parisson.com
- [@yomguy](https://twitter.com/@yomguy)
- github.com/yomguy/
- [+GuillaumePellerin](https://www.linkedin.com/in/guillaumepellerin)
- fr.linkedin.com/in/guillaumepellerin

TimeSide - Github repository

<https://github.com/yomguy/TimeSide/>

- 3 main branches: master, dev, diadems

Installation

<https://github.com/yomguy/TimeSide#install>

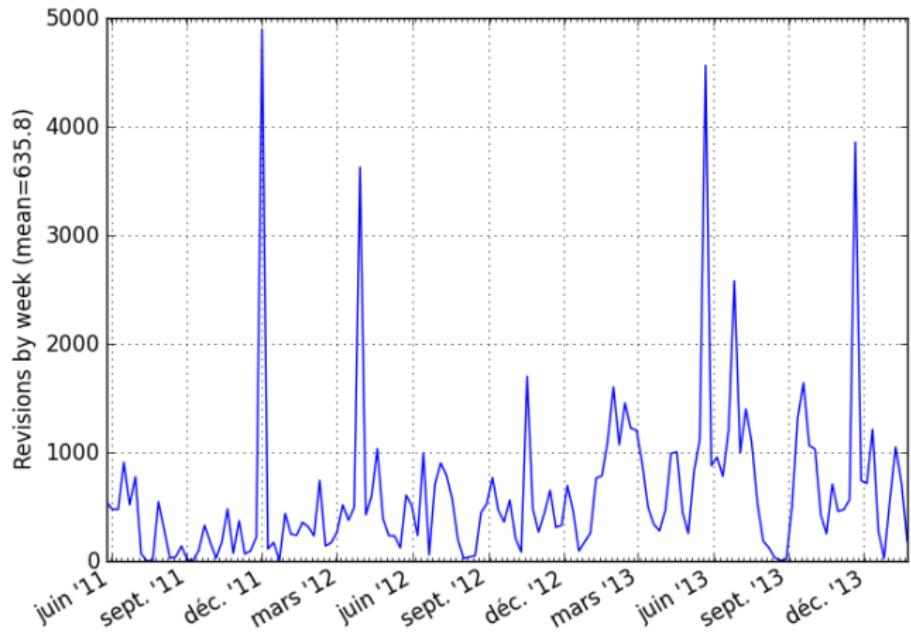
- Installation des dépendances :

```
$ echo "deb http://debian.parisson.com/debian/ stable main" |  
$ sudo tee -a /etc/apt/sources.list  
$ echo "deb-src http://debian.parisson.com/debian/ stable main" | sudo tee -a /etc/apt/sources.list  
$ sudo apt-get update  
$ sudo apt-get install git  
$ sudo apt-get build-dep python-timeside
```

- Installation depuis le dépôt *Github* :

```
$ git clone https://github.com/yomguy/TimeSide.git  
$ cd TimeSide  
$ git checkout dev  
$ export PYTHONPATH=$PYTHONPATH:'pwd'  
$ python tests/run_all_tests
```

Statistics - CREM revisions



CREM's Telemeta platform

- 2006: definition of the goals (open source web audio collaborative platform)
- 2007: first partner: french Research Center of Ethnomusicology (CREM)
- 2007 - 2009: technical specifications, definition of the DB migrator
- 2008: prototype development
- 2008 - 2010: workflow and format specifications
- 2011: development, final migration and release of **Telemeta 1.0** to the CREM for production : <http://archives.crem-cnrs.fr>
- 2011 - 2014: collaborative indexing, more development, massive data imports...

Workflow

Example: CREM audio archive access rules vs. resource status

Collection status	Item status	Priority	Sliding date	Admin & Doc access	Member access	Public access
full	full	Collection	x	full	full	full
metadata	metadata		x	full	full	metadata
metadata	metadata			full	metadata	metadata
none	none		x	full	none	none
none	none			full	none	none
mixed	full	Item	x	full	full	full
	metadata		x	full	full	metadata
	metadata			full	metadata	metadata
	none		x	full	none	none
	none			full	none	none