J R C   T E C H N I C A L   R E P O R T S

GDACS – Global Flood Observatory

Technical document
<mark>DRAFT</mark>

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Executive Summary

Floods impact over half a billion people every year worldwide, a number that might increase to two billion by 2050. In general, one third of humanitarian aid goes to flood related disasters. In recent years, much progress has been made in monitoring floods using satellite remote sensing and meteorological and hydrological modelling. Yet, a global flood monitoring & modelling system able to forecast, measure, map and monitor floods for rapid estimation or forecasting of the potential humanitarian and/or economic impact does not yet exist.

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1　Introduction

The system allows a distributed group of moderators to maintain a list of ongoing floods. The system aims at expanding the current methodology of the Dartmouth Flood Observatory, maintaining the same procedures and quality assurance, but sharing the work over interested agencies.

2　User interface

2.1　Data retrivial

The **Flood Events archive** page will show all the events recorded, **searchable** by word and **sortable**.

By clicking a single event (row) the **detail of the latests information published** will be shown.
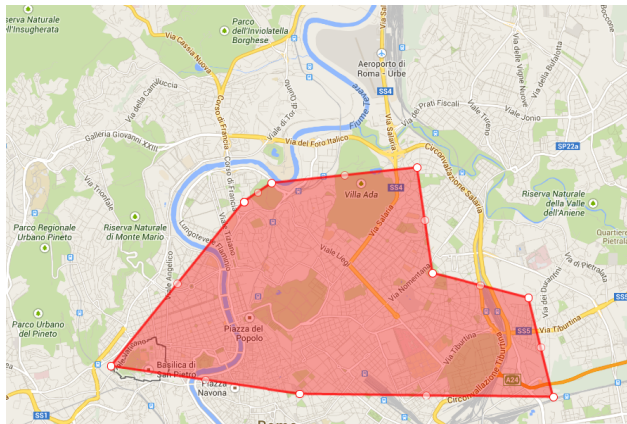
+ Information on Losses
+ Related resources (links, documents..)

2.2   Data entry

2.2.1   INSERT new event:

1 step: drow on map:

2 step: insert information

3 save draft

An <mark>email</mark> will be sent to validator

- **Publication workflow: VALIDATE and Publish drafts**
- **Trace user and timestamp**
- **VIEW Event History**
  The software will create automatically version history every time an event will be updated.
- **Automatic notification (email)**

2.2.2 UPDATE Ongoing Event

3 Data Model

The data model is design in order to keep trace and history of each single events:
it keep keep trace of **single episode**
- **related losses** and loss value
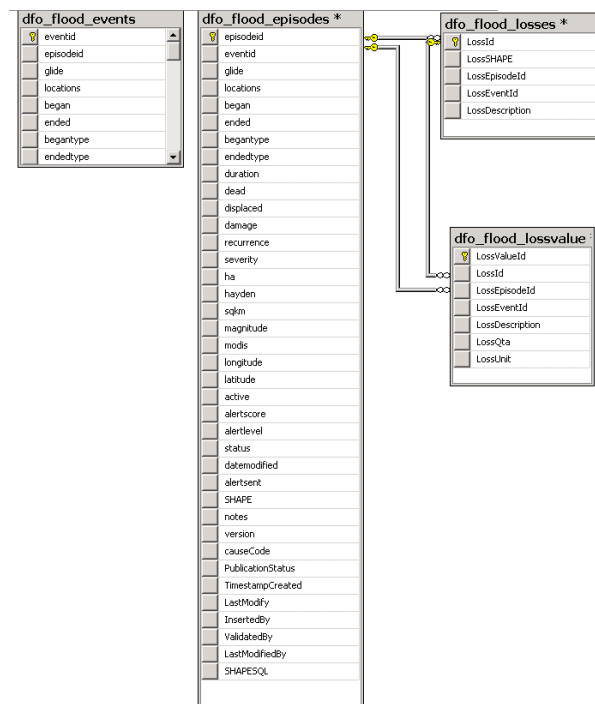- **related resources:** useful links ad documents

DIAGRAM: to be replaced

[dfo_flood_events]

```
[eventid] [int] IDENTITY(1,1) NOT NULL,
[episodeid] [int] NULL,
```

(…)
Other fields will be retrived from the latest [dfo_flood_episodes] record validated

[dfo_flood_episodes]

```
[episodeid] [int] IDENTITY(1,1) NOT NULL,
[eventid] [int] NULL,
[glide] [varchar](255) NULL,
[locations] [varchar](max) NULL,
[began] [datetime] NULL,
[ended] [datetime] NULL,
[begantype] [varchar](50) NULL,
[endedtype] [varchar](50) NULL,
[duration] [int] NULL,
[dead] [int] NULL,
[displaced] [int] NULL,
[damage] [varchar](255) NULL,
[recurrence] [int] NULL,
[severity] [int] NULL,
[ha] [numeric](10, 2) NULL,
[hayden] [varchar](255) NULL,
[sqkm] [numeric](10, 2) NULL,
[magnitude] [numeric](5, 2) NULL,
[modis] [varchar](255) NULL,
[longitude] [numeric](8, 3) NULL,
[latitude] [numeric](8, 3) NULL,
[active] [bit] NULL,
[alertscore] [numeric](5, 2) NULL,
[alertlevel] [varchar](255) NULL,
[status] [varchar](255) NULL,
[datemodified] [datetime] NULL,
[alertsent] [datetime] NULL,
[SHAPE] [geometry] NULL,
[notes] [varchar](max) NULL,
[version] [int] NULL,
[causeCode] [varchar](20) NULL,
[PublicationStatus] [nchar](10) NULL,
[TimestampCreated] [datetime] NULL,
[LastModify] [datetime] NULL,
[InsertedBy] [nvarchar](50) NULL,
[ValidatedBy] [nvarchar](50) NULL,
[LastModifiedBy] [nvarchar](50) NULL,
[SHAPESQL] [nvarchar](max) NULL
```

[dfo_flood_losses]

```
[LossId] [int] IDENTITY(1,1) NOT NULL,
[LossSHAPE] [geometry] NULL,
[LossEpisodeId] [int] NULL,
[LossEventId] [int] NULL,
[LossDescription] [nvarchar](max) NULL
```

[dfo_flood_lossvalue]

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[LossValueId] [int] IDENTITY(1,1) NOT NULL,
[LossId] [int] NOT NULL,
[LossEpisodeId] [int] NULL,
[LossEventId] [int] NULL,
[LossDescription] [nvarchar](max) NULL,
[LossQta] [float] NULL,
[LossUnit] [varchar](50) NULL
```

[dfo_flood_documents]

```
[docId] [int] IDENTITY(1,1) NOT NULL,
[doctitle] [varchar](255) NULL,
[description] [text] NULL,
[filename] [varchar](255) NULL,
[docType] [varchar](50) NOT NULL,
[access] [varchar](50) NULL,
[lossid] [int] NULL,
[username] [varchar](50) NULL,
[uploadDate] [datetime] NULL,
[updateDate] [datetime] NOT NULL,
[thumbnailImage] [varchar](255) NULL,
[owner] [varchar](50) NULL,
[iso3] [varchar](50) NULL,
[eventType] [varchar](2) NULL,
[episodeid] [int] NULL,
[eventid] [int] NULL,
[timestamp] [datetime] NULL,
[docIcon] [varchar](max) NULL,
[status] [int] NULL,
[docPath] [nvarchar](max) NULL
```

[dfo_flood_links]

```
[lid] [int] IDENTITY(1,1) NOT NULL,
[episodeid] [int] NULL,
[eventid] [int] NULL,
[lossid] [int] NULL,
[url] [nvarchar](max) NOT NULL,
[description] [nvarchar](max) NULL,
```

TIMESTAMP ON ALL RECORD will be added for tracing purpose

4 Data import from Dartmouth Flood Observatory

5 Activities and task

- Finish database design (timestamp, trace user)
- Import data from DFO
- User interface:
    - Insert/Edit/Publish data
    - Automatic fields calculation (area, glide number,..)
    - Layers management on map drawing

Abstract
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