# CLASSIFICATION OF SATELLITE IMAGES AND THEIR CONTRIBUTION TO ACHIEVING THE OBJECTIVES OF SANDAI FRAMWORK

Arezki Dounia

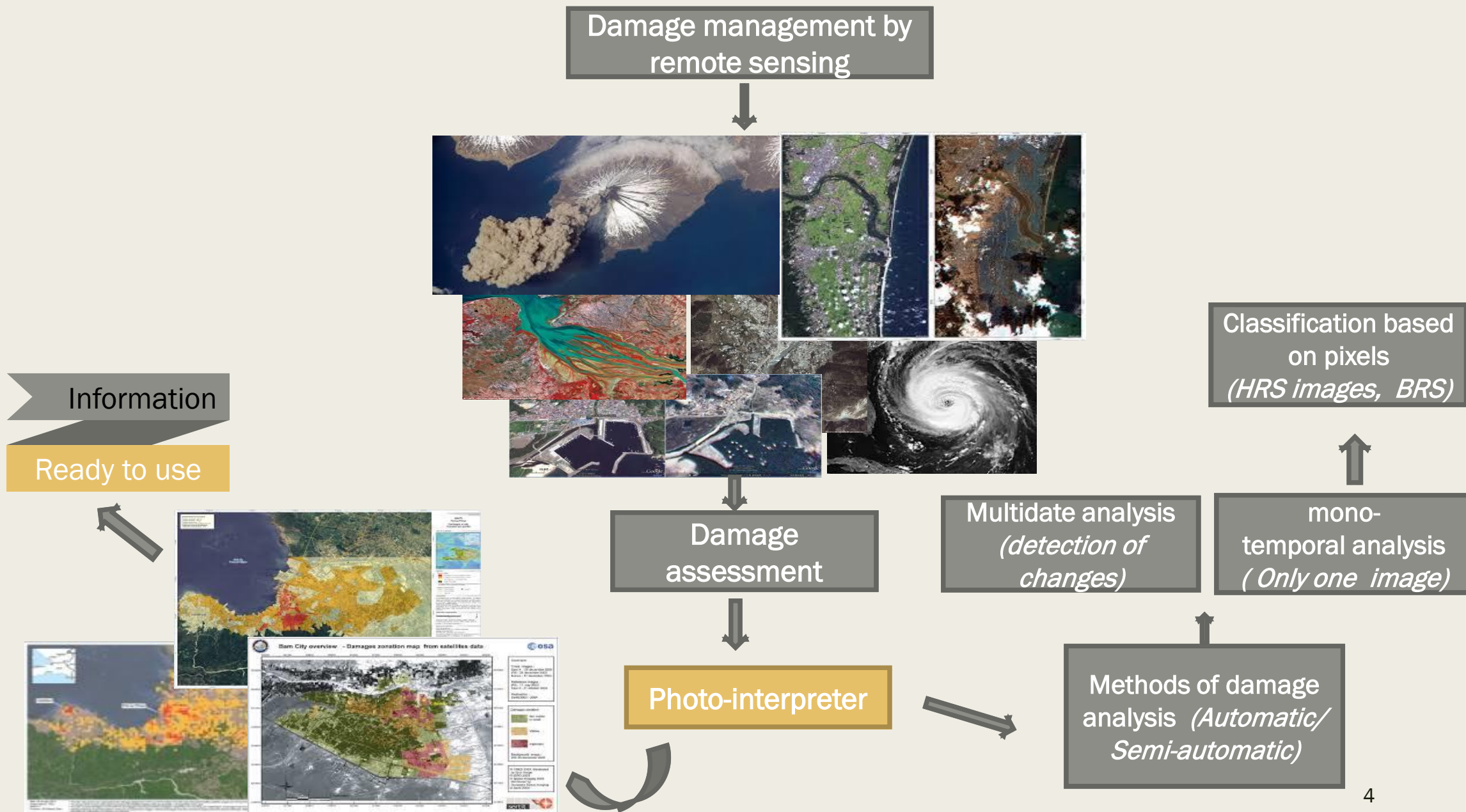University of Science and Technology of Oran - Mohamed-Boudiaf

# Contents

- Satellite image classification

- Change detection

- Floods  in Algeria

# Introduction

- Managing risks rather than managing disasters;
- Natural hazard;
-  serious disruption causing great human and material losses;
- Cant stop it from happening ;
- improve monitoring ;
- earth observation;
- Right measures to limit the losses.

Damage management by remote sensing



Information

Ready to use

Classification based on pixels
*(HRS images, BRS)*

Damage assessment

Multidate analysis *(detection of changes)*

mono-temporal analysis *( Only one image)*

Photo-interpreter

Methods of damage analysis *(Automatic/ Semi-automatic)*

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# Bio inspired

- The formal methods;

- Enormous computational efforts ;

- Size of the problem;

- There are still other algorithms inspired by biological systems that

  have not yet been applied and tested on classification problems.

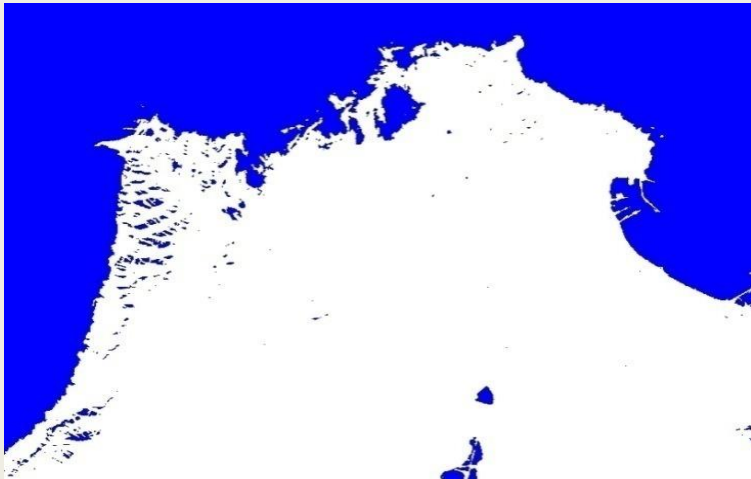**Cause** **Event** **Consequence**
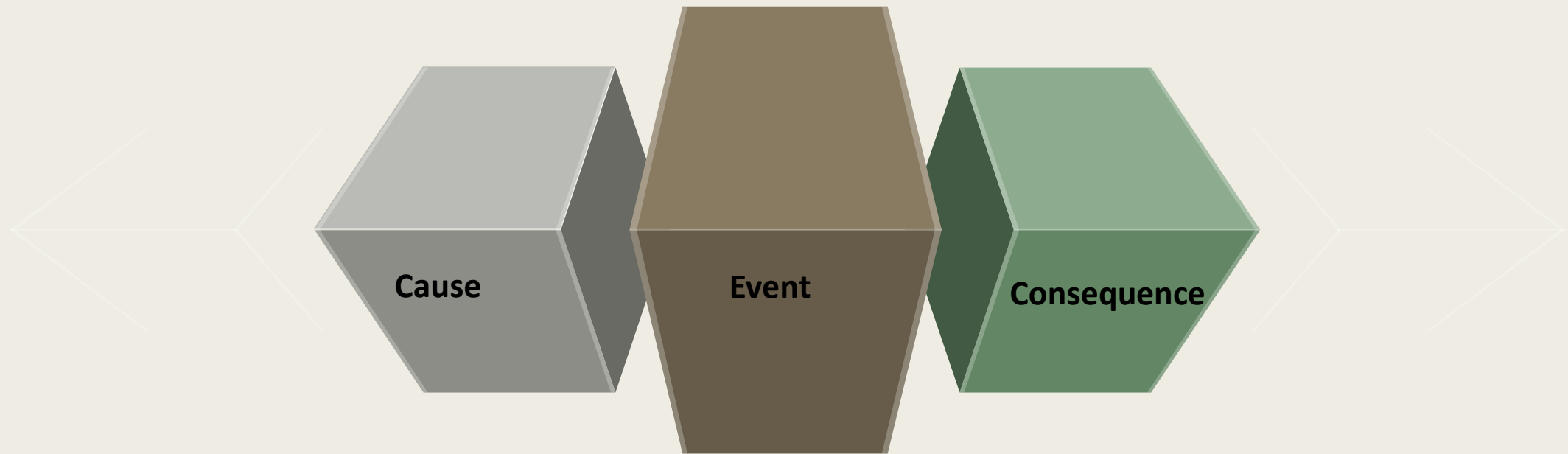
# Before the disaster



Ghardaia

- Knowledge is power;

- Time and place;

- Prevention organization;

- the real hydraulics capacity of the  city;
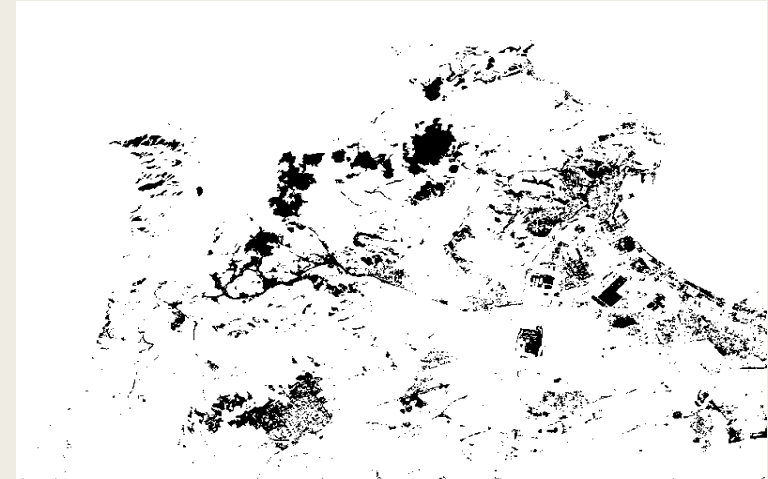
- Displacement of the water borders;

- Rivers deviation.

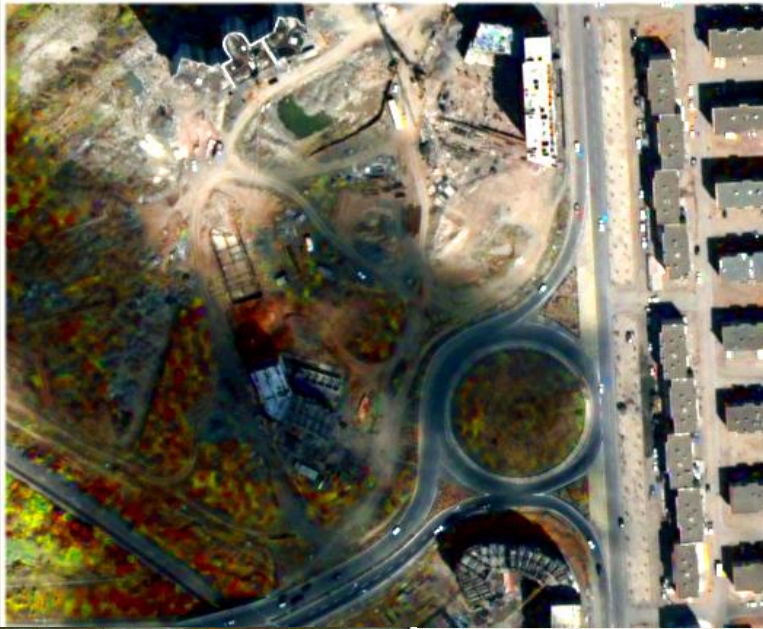**Extraction of water areas**

**Extraction of urban areas**

Arzew area    600 x 800
RS 30m

# During

- Anticipation (of the damages)and management;

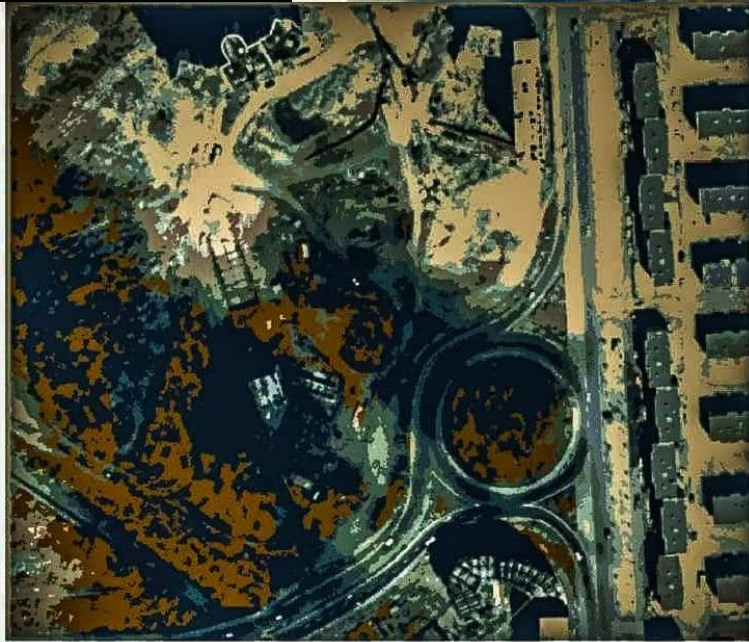- Emergency mapping

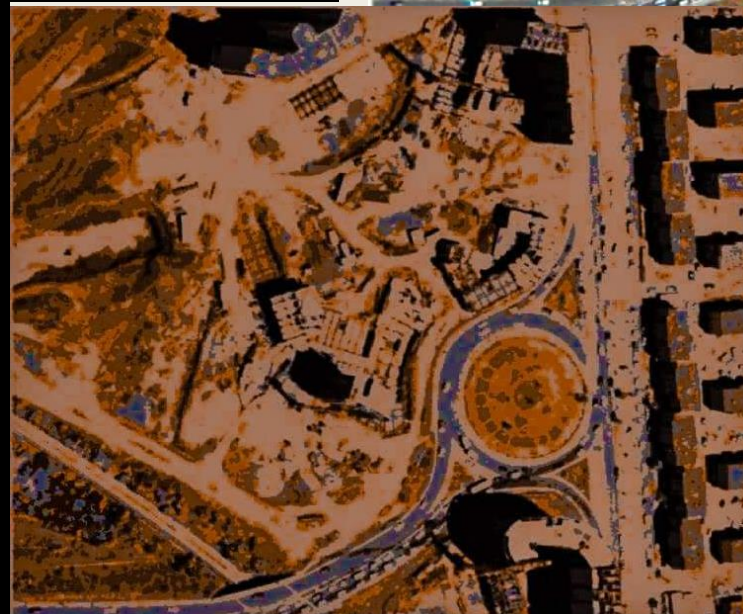# Satellite image classification using FPA/AG

Earthquake in
Boumerdes
21/05/2003


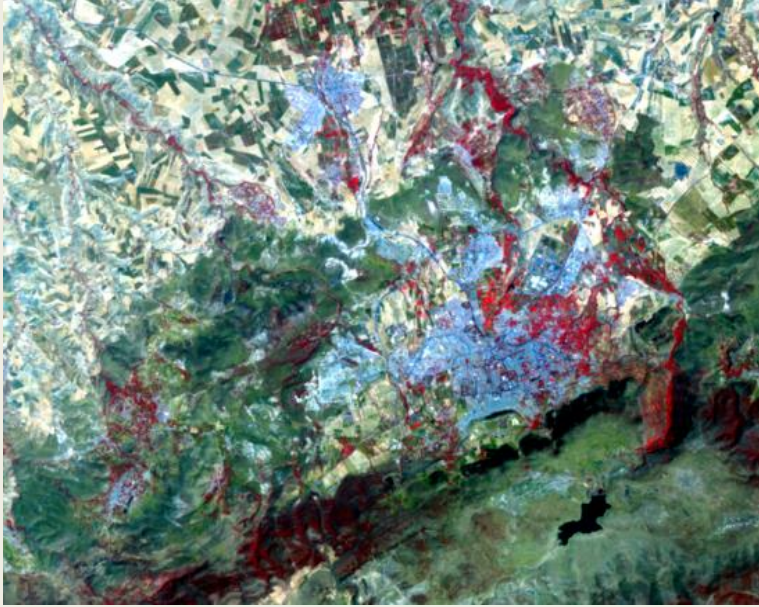
BEFORE



AFTER

Classified image

Classified image

- feedback and information and study the impact.

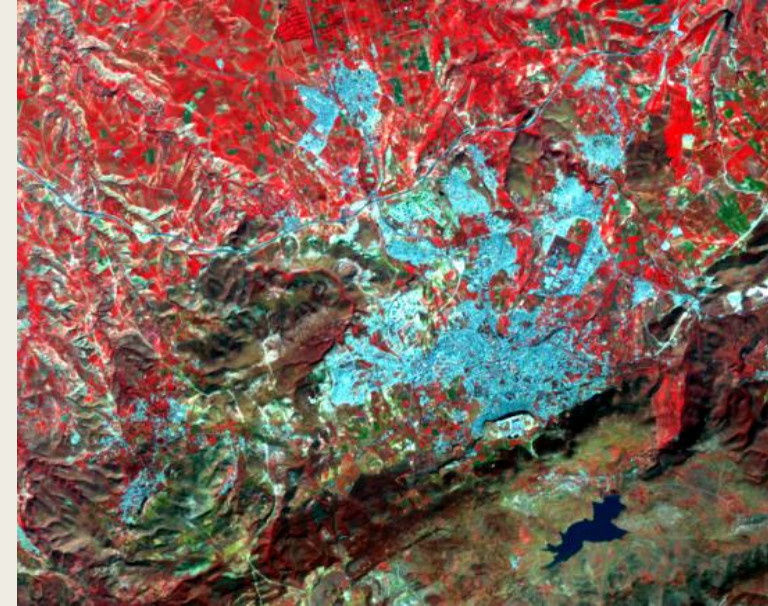# Change detection(Urban expansion )

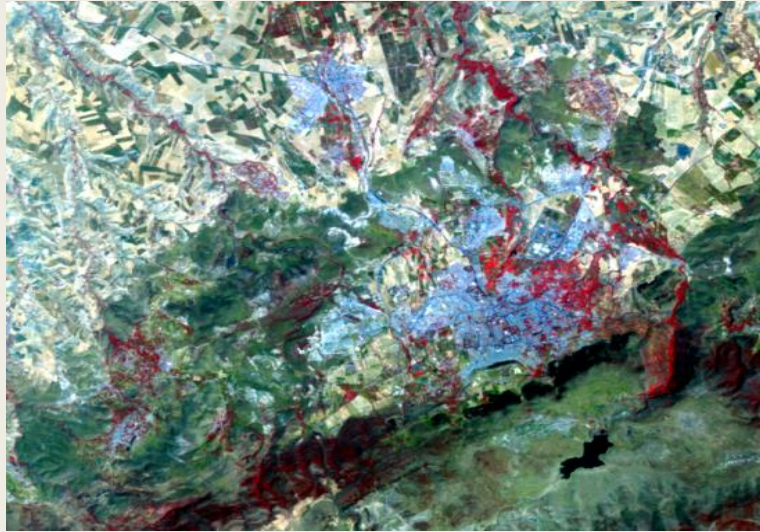## Studied area `TLEMCEN, Algeria

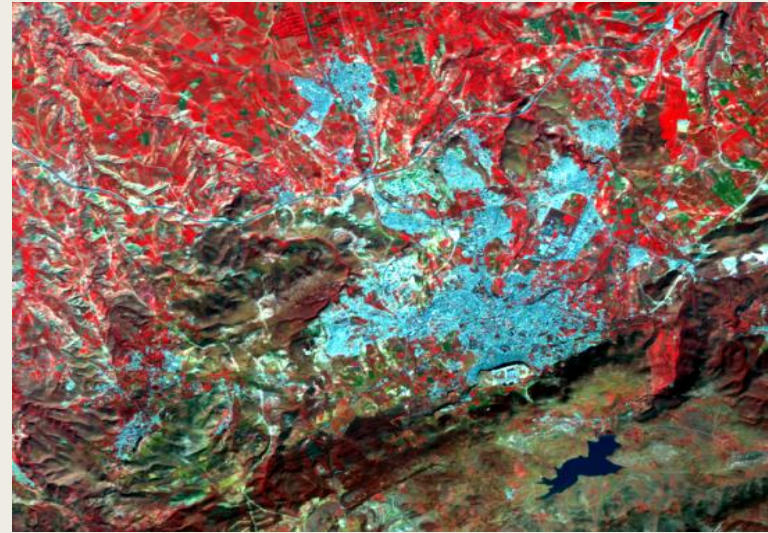# Data used



Satellite Image 1999

Satellite Image *2010*

Satellite Image *2015*

# Change detection 1999-2015 S.Gherdaoui



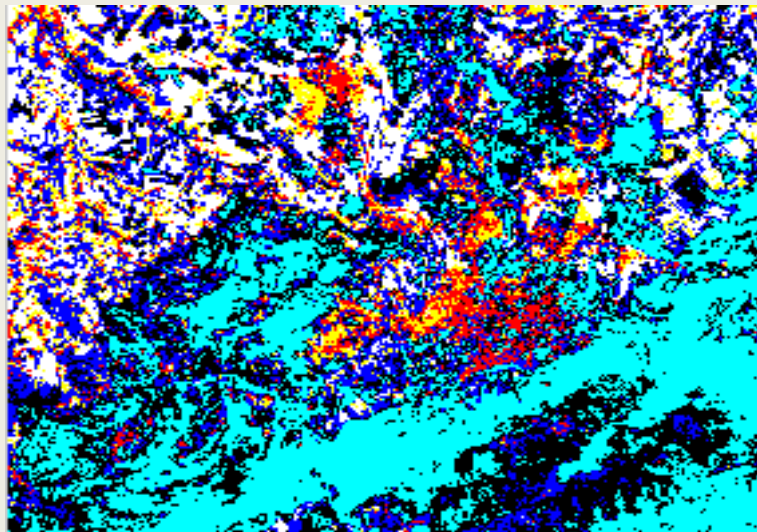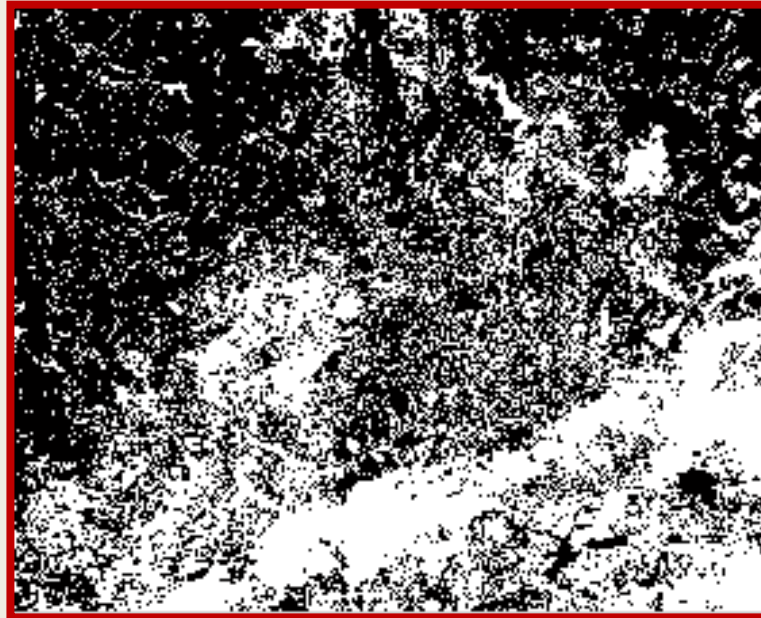Satellite Image 1999



Satellite Image *2015*



Change detection map

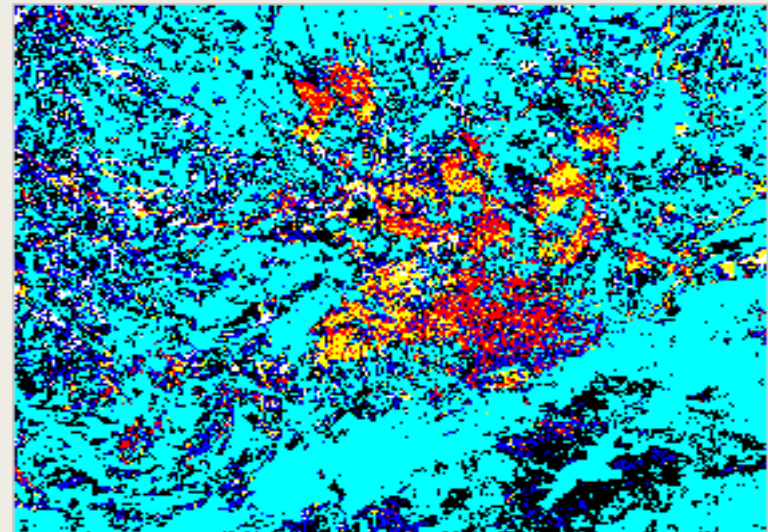

Image classification 1999



Image classification 2015

# Change detection 2010-2015 S.Gherdaoui



Satellite Image 2010



Satellite Image *2015*
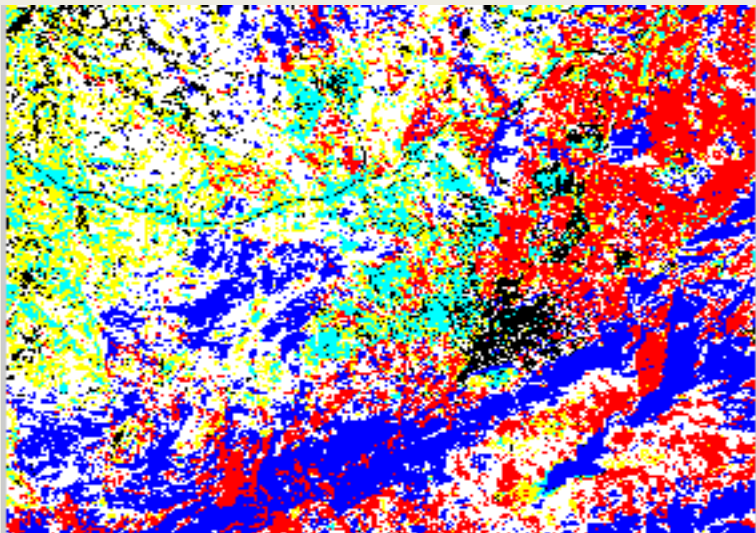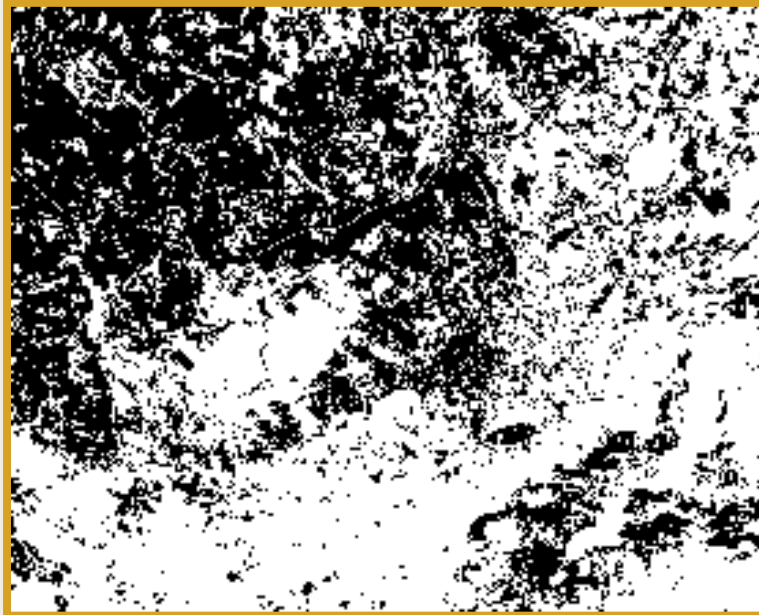


Change detection map



Image classification *2010*
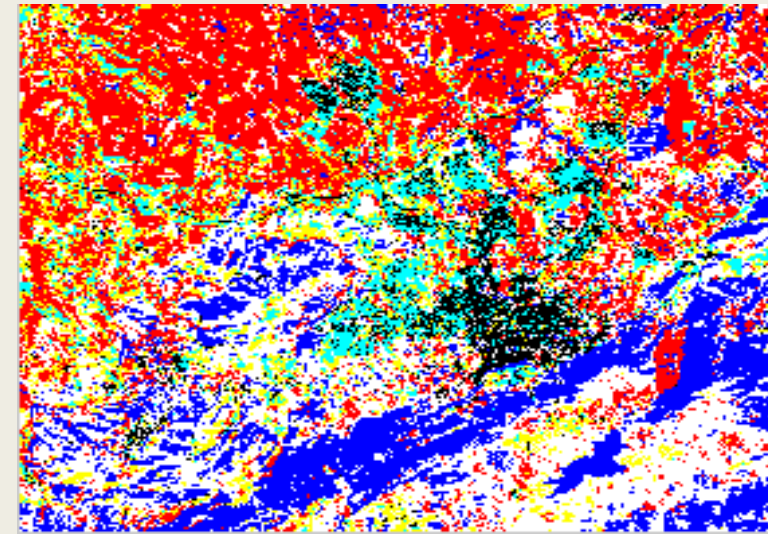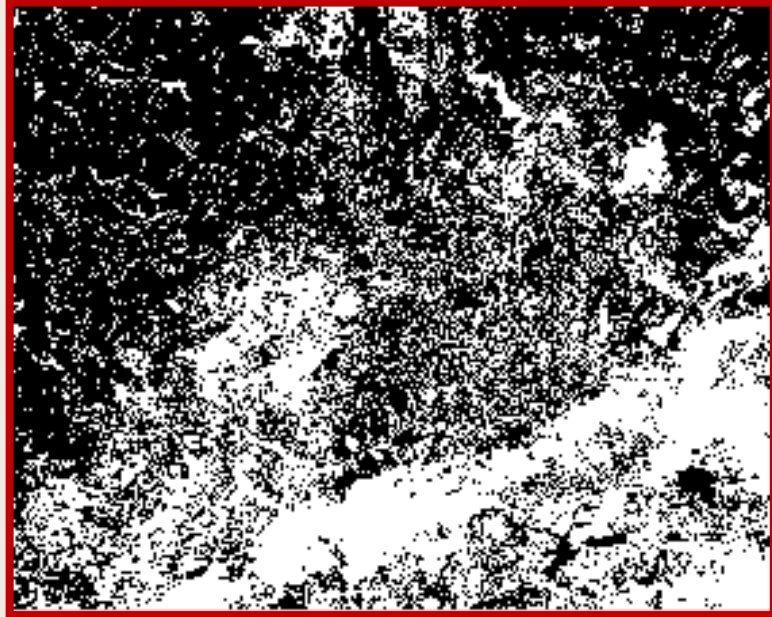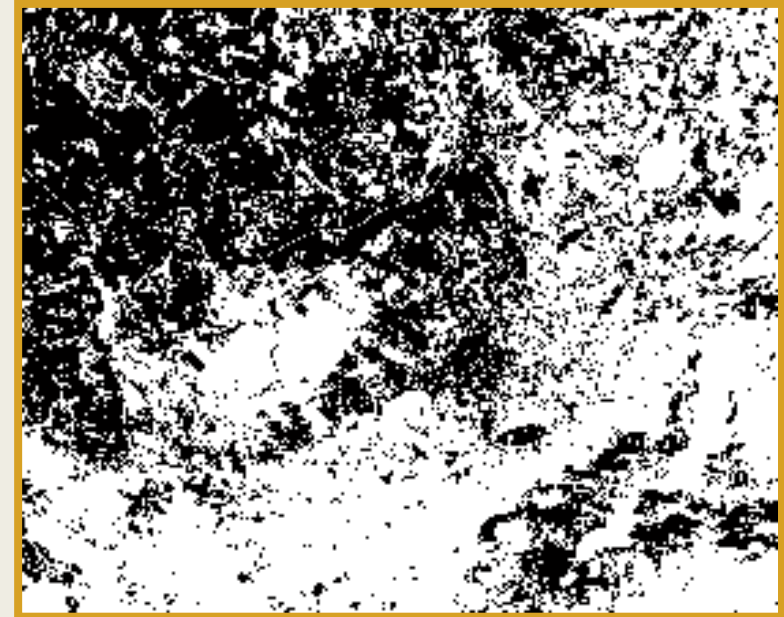


Image classification *2015*

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# Change detection maps (Urban expansion )



Change detection map
**1999**-2015



Change detection map
2010-2015

Bab El Ouad flood 10 November 2001/Over one thousand deaths .

# The floods in Algeria



**1**

Tamanrasset 4/8/2018

**More then 12 people recorded dead**

**4**

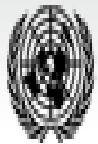Algiers 02/10/2018

**2**

Tbessa 12/09/2018

**3**

Constantine 19/09/2018

# Conclusion & Perceptive

- More ground field work;

- Adapt to nature not change it;

- Better detailed classification of the satellite images (object based classification );

- Make better use of the experiences and the floods that already occurred ;

- Use multidate analysis to have better feedback.

# THANK YOU FOR YOUR ATTENTION