THE DEVELOPMENT OF RAPID EXTRACTION AND PUBLISHING SYSTEM OF EARTHQUAKE DAMAGE BASED ON REMOTE SENSING

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1. INTRODUCTION

The Rapid Extraction and Publishing System of Earthquake Damage Based on Remote Sensing (**REPSEDORS**) has been developed in 2014 as a professional application system of RS image processing and analysis of multi-source data such as satellite and airborne images, geographical, social and economic information in the earthquake emergency stage. Based on the achievements of research and application of quantitative RS to the emergency practice after a serial of earthquakes since 2003, it is one of the important parts in a national key construction project of China, *the national earthquake social service project*, in order to improved the timeliness of RS application in earthquake emergency stage.

## 2. THE AIM AND DEVELOPMENT OF REPSEDORS

The **REPSEDORS** system is designed to identify rapidly the building and road damage, earthquake induced landslide and surface rupture etc. from RS images by using intelligent method. Then the distribution of seriously collapsed or damaged buildings, roads and landslides will be assessed. Further the evaluation of the important target damage degree, extreme disaster area and extension of disaster area, seismic damage degree distribution, seismic intensity distribution as well as the earthquake losses etc. might be done. The outputs will be damage image, assessment thematic map, report on 2D map or 3D digital globe released promptly through the internet. All the results will be used to support the decision-making of emergency command and rescue.

The **REPSEDORS** system runs in windows 7 or upper with ArcGIS database server 10, WebGIS server. The software environment will include eCognition Engine Server 8.8, ArcEngine 10, ArcSDE 10. The system is developed by VS C++ and C#.

3. THE MAIN FUNCTIONS OF REPSEDORS
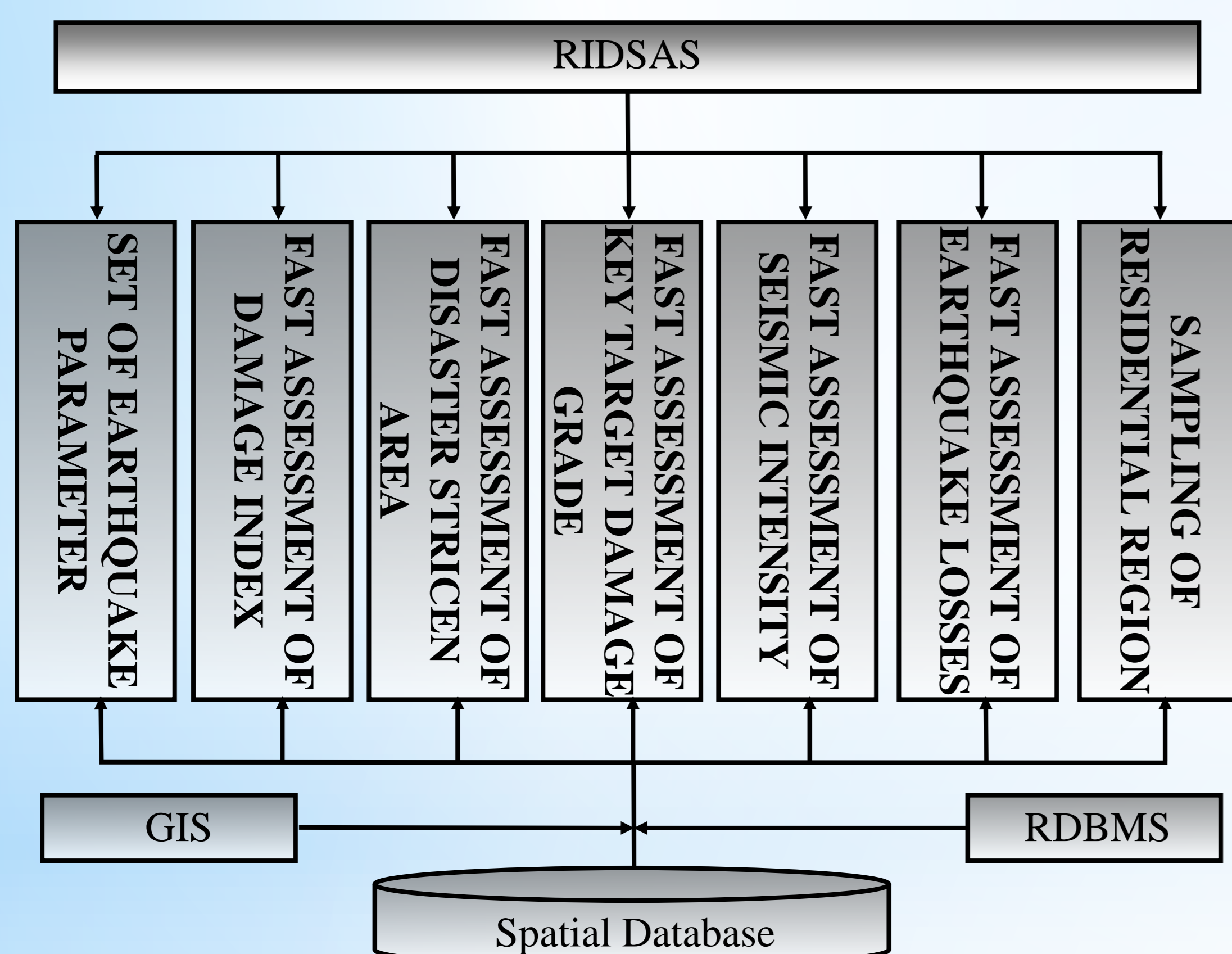
The main functions of *the RS based rapid identifying and label subsystem of earthquake disaster stricken area* (**RIDSAS**)
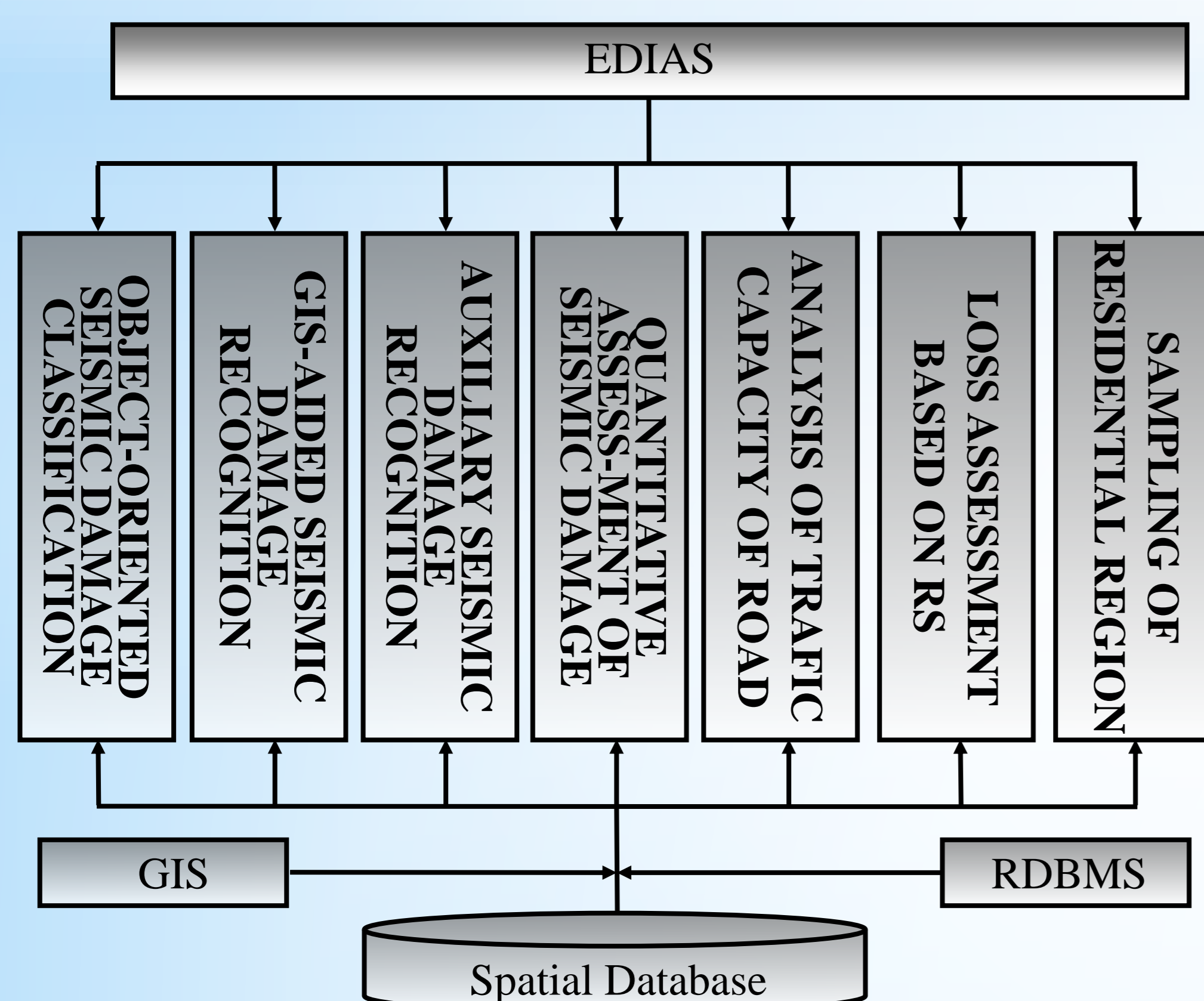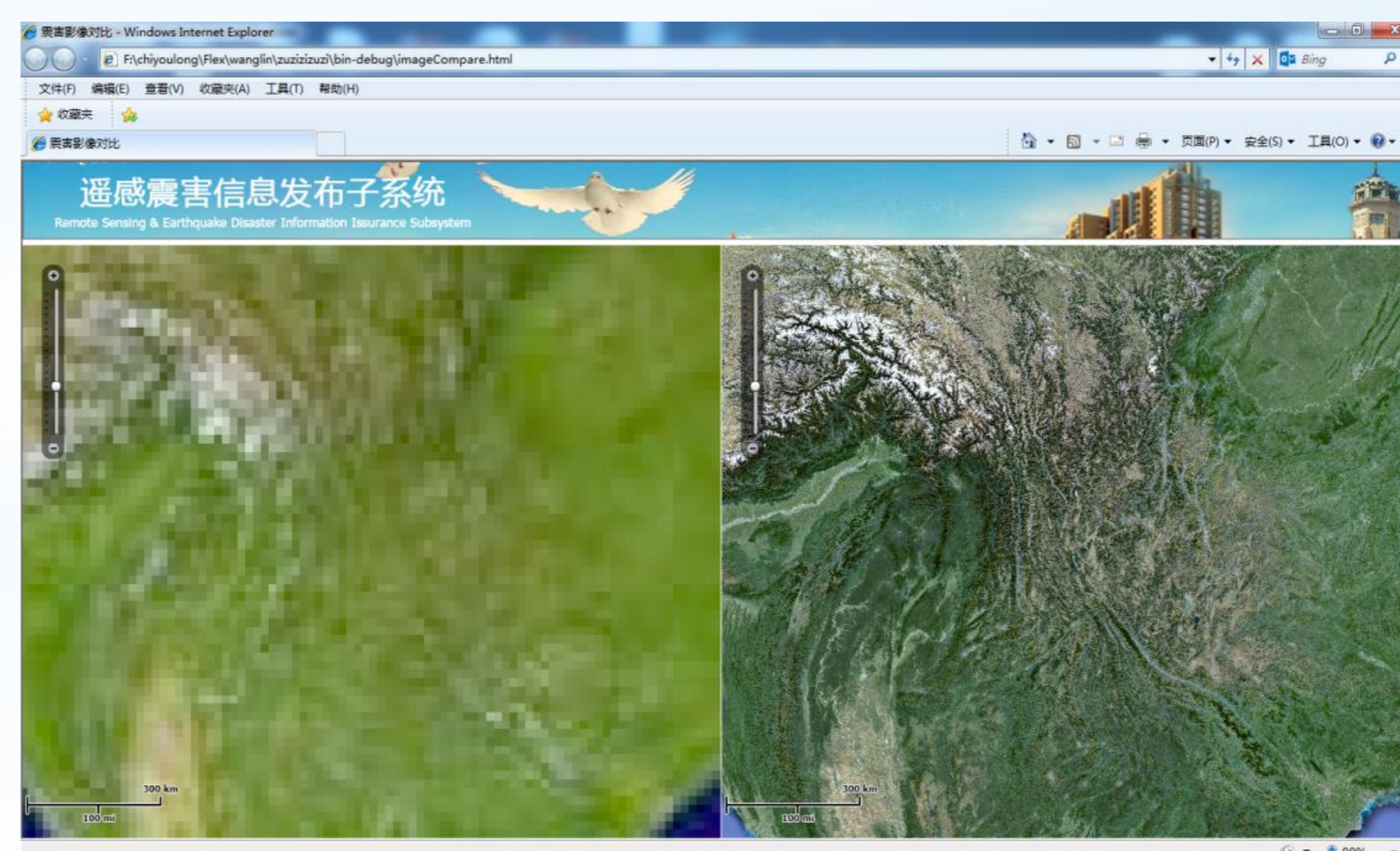

The main functions of *the RS based quantitative identification and assessment subsystem of earthquake damage* (**EDIAS**)

(a) Main window of 3DR

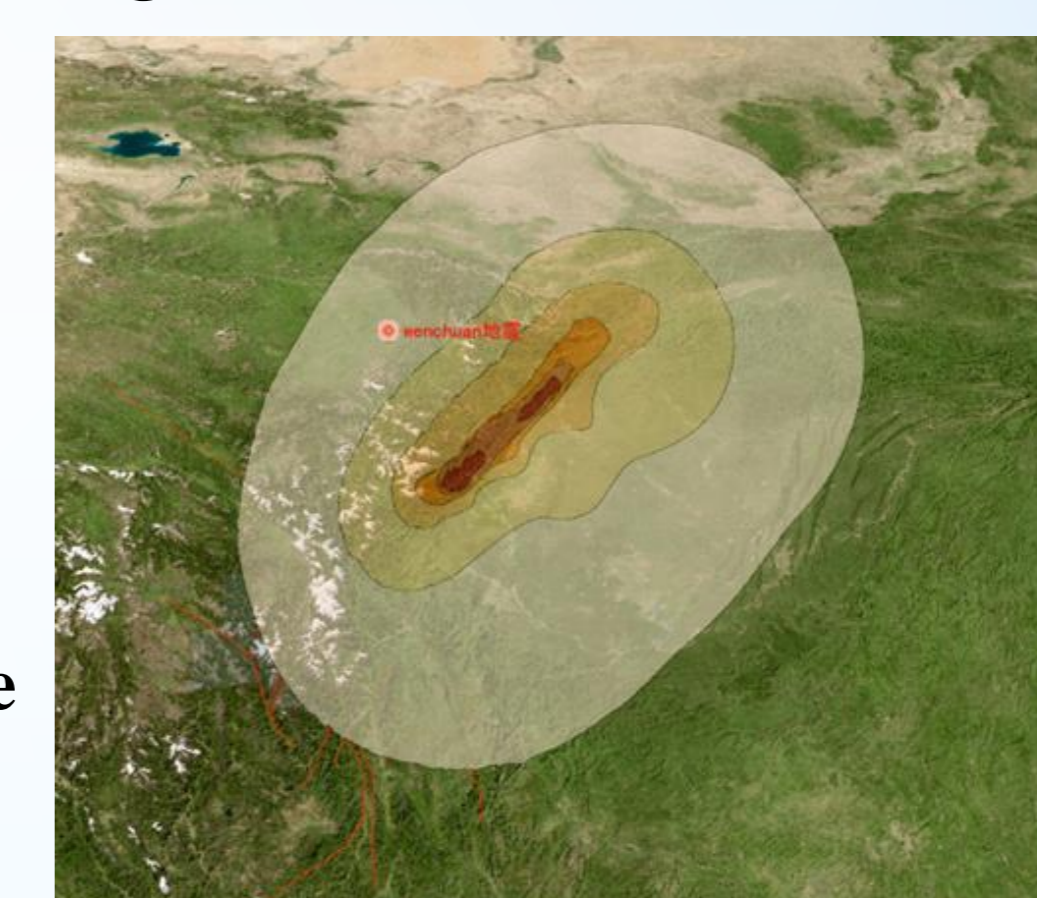(b) Historical earthquake distribution

(c) Displaying by comparison between RS images

(d) earthquake induced landslide image

(e) Building damage image and damage grade identification

(f) Seismic intensity map

The main windows interface and some map and image of *three dimensional dynamic display and release subsystem of earthquake damage information* (**3DR**)

4. CONCLUSION and ACKNOWLEDGEMENT

The paper introduces **REPSEDORS** system as an operational system applied for earthquake emergency and rescue based mainly on RS images. The primary application in recent events of earthquakes occurred in China has shown potential ability of application in practical earthquake emergency action. The system development solution might be referred for similar system development and application.