

Chapter 12. QASEM and Ground Truthing the Results

QASEM the Quick Assessment Event Monitoring tool, allows **HAZUS** to automatically run real-time scenarios on computers equipped with a **REDI-CUBE** system.

Given a correctly installed **REDI-CUBE** system, when an earthquake occurs, **QASEM** automatically launches **HAZUS**, creates a study region of the appropriate size, defines a scenario with the parameters (location, magnitude) of the earthquake which has just occurred, and runs the analysis. All steps do not require any intervention from the user.

To use **QASEM** correctly, the following requirements should be met:

1. The **REDI-CUBE** system should be installed and working correctly as per the instructions that came with the system.
2. **QASEM** should be installed. Since the **HAZUS** setup program *does not* install **QASEM** by default, the **QASEM** option has to be selected specifically.
3. **QASEM** should be running at all time. By default, the **HAZUS** setup program adds the **QASEM** shortcut to the user's startup folder so that **QASEM** is launched automatically every time Windows is launched.

12.1 Launching QASEM

By default, **QASEM** runs every time Windows is launched. If **QASEM** is not running, launch it by selecting **Start|FEMA Risk Assessment System|QASEM** (this assumes that the default group "FEMA Risk Assessment System" was used during the setup.)

12.2 QASEM Options

Like **HAZUS**, **QASEM** includes pre-set options for most of its parameters; however, these options must be edited to reflect the correct user's choices.

12.2.1 The Pager File

There is no default to this option. When started, **QASEM** will always display the message shown in Figure 12.1. To correct the error, click the **Specify...** button for **REDICUBE pager data file**, and select the pager file used by your **REDI-CUBE** system.⁸



Figure 12.1 Error message about

⁸ QASEM has been tested with version 2.5 of the pager file format.

12.2.2 Monitoring Type

Whenever an earthquake event occurs in California that can be picked up by the **REDI-CUBE** system, the signal is sent to the pager and will be picked up by **QASEM**. The monitoring type option allows filtering of the events based on the location.

Select the **All events** option if you want **HAZUS** to be launched for all the events that can be picked up by **REDI-CUBE**. Select **Only those within the boundary** option to pick up only the earthquake events that occur inside a given boundary. Specify the boundary map by clicking the **Specify...** button.

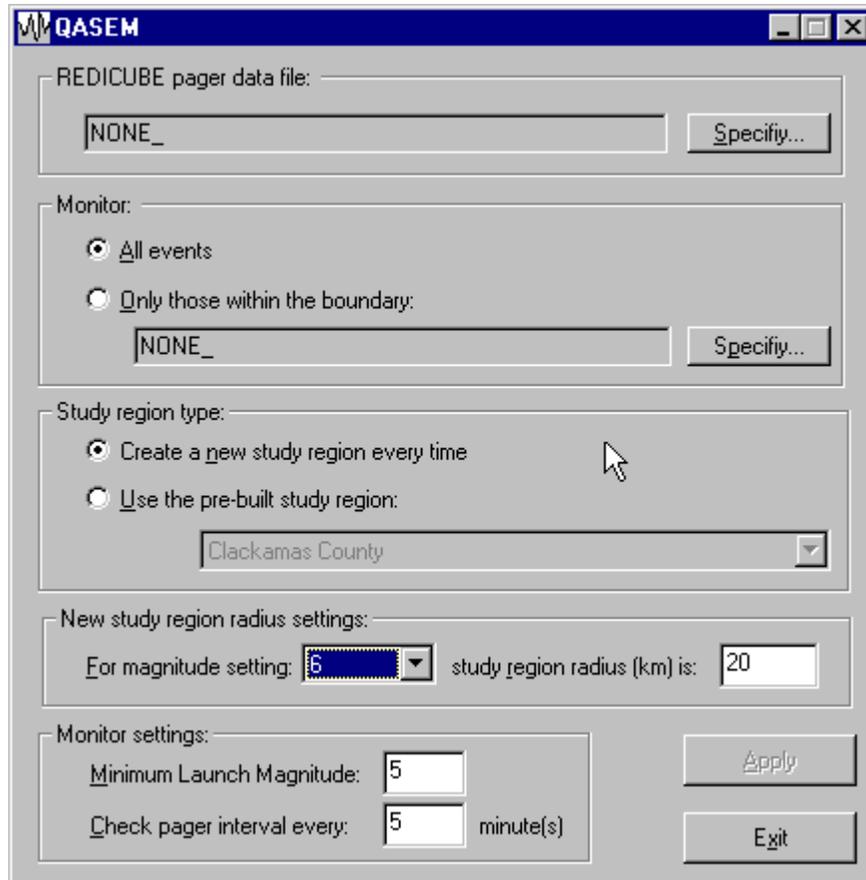


Figure 12.2 QASEM Options

12.2.3 Study Region Type

This option controls what type of study region will be used. The option **Create a new study region every time** will have **HAZUS** create a new region for each new earthquake event. The region boundaries are controlled by the **New study region radius settings** as follows:

- The epicenter of the earthquake event will be used as the centroid of the study region
- **HAZUS** will include all of the census tracts that lie within the radius of that epicenter. The radius of the circle is the value specified under **New study region radius settings**
- The option **Use the pre-built study region** makes **HAZUS** use the specified study region (which was pre-built). This option comes in handy in the case the user cares only about his region, which he/she has already created and enhanced. To define the pre-built region to use, simply select from the combo-box (**QASEM** will list automatically all the regions which are pre-built.)

12.2.4 Study Region Radius

This option is used when the **Create a new study region every time** option was selected (as explained in the above section.) Since the extent of the region affected by an earthquake is a function of the magnitude of the event (large events affect larger regions), **QASEM** allows settings different values for different magnitudes and will interpolate correctly the radius for any event size.

12.2.5 Monitor Settings

This option controls at what point **QASEM** is triggered. The **Minimum launch magnitude** filters the events based on their size, i.e. all events that are less than the value specified will be ignored. The **Check page interval every x minutes** controls how often **QASEM** probes the **REDI-CUBE** system. To have **QASEM react** to an event real-time, set the interval to a low value like 1 or 2 minutes. The downside is that this will burden the machine⁹.

12.3 QASEM Results

When an earthquake event that meets the criteria specified in the all the options described above, **QASEM** launches **HAZUS**.

HAZUS then creates a new study region (or use a pre-built one) depending on the study region type option set, defines a scenario with the parameters of the event, runs the analysis using a pre-defined set of options, and then shuts down¹⁰.

The results for a **QASEM** analysis are summarized into a **QAS** (Quick Assessment Summary Report) that can be accessed in **HAZUS** through the option **Results|Summary Reports|Other|Quick Assessment Report** as shown in Figure 12.3.

⁹ In a typical environment, a machine should be dedicated exclusively to **REDI-CUBE** and **QASEM** and therefore the interval should be set to the minimum (1 minute) for real-time monitoring.

¹⁰ **HAZUS** always shuts down at the end so that any after-shock events can be picked up and analyzed too.

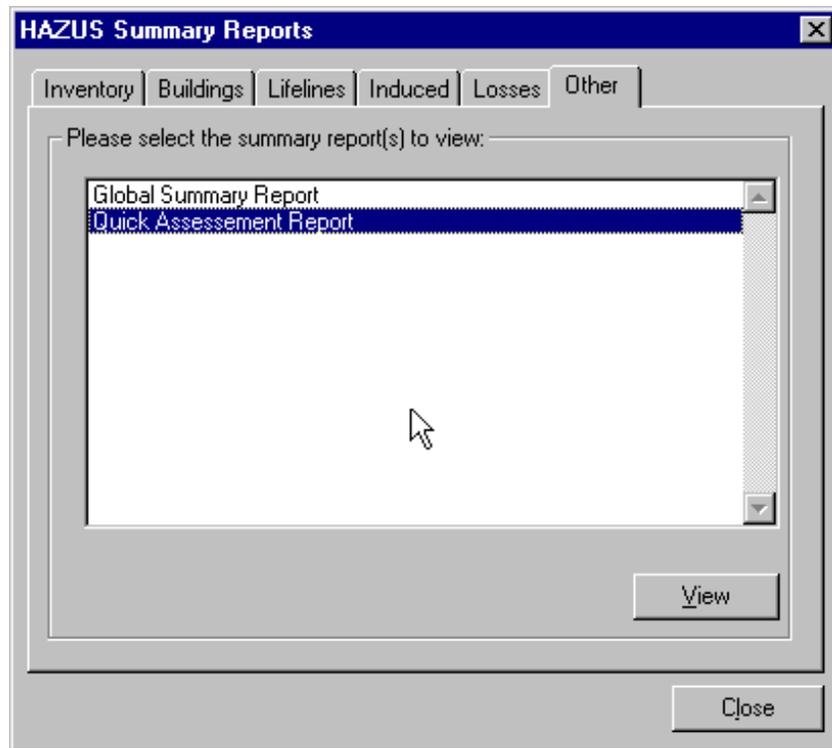


Figure 12.3 Accessing the QAS Report