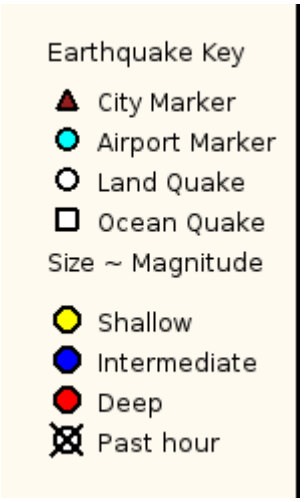
## TECHNICAL EXPLANATION

1) I modified the key to include "Airports" in the method: private void addKey()

```
fill(0, 255, 255);
ellipse(xbase+35,ybase+70,10,10);
text("Airport  Marker",xbase+50, ybase+70);
```

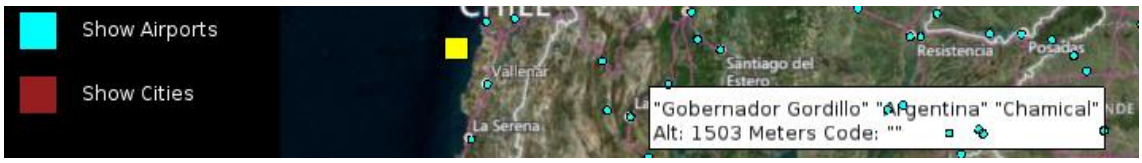



2) **I added two buttons at the bottom left of the frame with the method "drawButtons()". I called this method from "**addKey()**" method.**

```
public void drawButtons() {
    int ybase = 50;
    int xbase = 35;
    fill(0,255,255);
    rect(xbase,ybase+260,25,25);
    fill(150, 30, 30);
    rect(xbase,ybase+300,25,25);

    fill(255, 255, 255);
    textAlign(LEFT, CENTER);
```

```
        textSize(12);
        strokeWeight(2);
        text("Show Airports", xbase+40, ybase+270);
        text("Show Cities", xbase+40, ybase+310);
}
```




**3)** I read the file to load airports information and create the Markers , and I add the Markers to the map. All in the method "setup()"

```
// Markers for each Airport
private List<Marker> airportList;
// get features from airport data
List<PointFeature> features = ParseFeed.parseAirports(this, "airports.dat");
// list for markers, hashmap for quicker access when matching with routes
airportList = new ArrayList<Marker>();
// create markers from features
for(PointFeature feature : features) {
        AirportMarker m = new AirportMarker(feature);
        m.setRadius(5);
        // default behavior, we only show cities when the application starts
        m.setHidden(true);
        airportList.add(m);
}
// Add markers to map
map.addMarkers(airportList);
```

4) In the method “mouseMoved()” I have to add

```
selectMarkerIfHover(airportList);
```

to select the Marker if the mouse is over the Airport.

5) **To show only airports in the "threat circle", or distance up to which an earthquake can affect things I have to add in “checkEarthquakesForClick()”**

```
for (Marker mhide : airportList) {
        if (mhide.getDistanceTo(marker.getLocation()) > marker.threatCircle()) {
                mhide.setHidden(true);
        }
}
```


6) **To control when show airports or cities because there was a click in a button to show airports or cities I had to code the “public void mouseReleased()” method to catch the event from the mouse.**

```
// boolean variables to know if cities or airports could be hidden
private boolean cityHidden = false;
private boolean airportHidden = true;

public void mouseReleased() {
        int ybase = 50;
        int xbase = 35;
        if(mouseX > xbase && mouseX < xbase+25 && mouseY > ybase+260 &&
mouseY < ybase+260+25) { // button Show Airports
                hideCities();
```

```
                showAirports();
                cityHidden = true;
                airportHidden = false;
        } else if(mouseX > xbase && mouseX < xbase+25 && mouseY > ybase+310 &&
mouseY < ybase+310+25) { // button Show Cities
                        hideAirports();
                        showCities();
                        cityHidden = false;
                        airportHidden = true;
                }
        }
// helper methods to hide or show markers
private void hideCities() {
        cityMarkers.forEach(c -> c.setHidden(true));
}
private void hideAirports() {
        airportList.forEach(a -> a.setHidden(true));
}
private void showCities() {
        cityMarkers.forEach(c -> c.setHidden(false));
}
private void showAirports() {
        airportList.forEach(a -> a.setHidden(false));
}
```

7) **In the class AirportMarker.java I had to override the "showTitle" method to show rectangle with title in the airport marker.**

```
@Override
public void showTitle(PGraphics pg, float x, float y) {
        // show rectangle with title
```

```
        String name = getCity() + " " + getCountry() + " " + getName();
        String pop = "Alt: " + getAltitude() + " Meters" + " " + "Code: " + getCode();

        pg.pushStyle();

        pg.fill(255, 255, 255);
        pg.textSize(12);
        pg.rectMode(PConstants.CORNER);
        pg.rect(x, y-TRI_SIZE-39, Math.max(pg.textWidth(name), pg.textWidth(pop)) +
6, 39);
        pg.fill(0, 0, 0);
        pg.textAlign(PConstants.LEFT, PConstants.TOP);
        pg.text(name, x+3, y-TRI_SIZE-33);
        pg.text(pop, x+3, y - TRI_SIZE -18);

        pg.popStyle();
}
// helper methods to get the properties from the airport marker
private String getCity(){return getStringProperty("city");}
private String getCountry(){return getStringProperty("country");}
private String getAltitude() {return getStringProperty("altitude");}
private String getName(){return getStringProperty("name");}
private String getCode() {return getStringProperty("code");}
```