OVERVIEW

In the GIS community, we often claim that all data have a spatial component; that’s why all data can be used in GIS. However, with that logic, all data must also have a temporal component. There is a time of occurrence and a time of collection for all of our GIS datasets – a time series.

There are two main goals of time series analysis: (a) identifying the nature of the phenomenon represented by the sequence of observations, and (b) forecasting (predicting future values of the time series variable). Both of these goals require that the pattern of observed time series data is identified and more or less formally described. Once the pattern is established, we can interpret and integrate it with other data.

The importance of temporal visualization is clear upon visiting the website: the Mapping the Media databases contain a considerable amount of information from different years which is integrated into the interactive GIS maps on the web-site. On a map, vital spatial, temporal patterns and relationships are apparent amongst disparate data. In a database, they may be hidden in a sea of tables and text and may be difficult to distinguish.

The layers of data are not meant to be displayed all at once; to do so would be a confusing and ineffective use of the powerful functionality of the web-based maps. Instead, the media layers should be activated against either the census or political data to visualize the connections between media publicity, electorate/demographic profile and voting patterns.

Who should use this manual?

This manual is intended to provide useful information for users interested in exploring possible associations between media, demographic and electoral information in 12 countries in the Americas. The manual provides a simple step-by-step guide to help to increase the understanding of users with selecting and overlaying information for data display, comparisons and visual analysis.

Importantly, this manual explores the GIS functionality of the Mapping the Media in the Americas website while also providing a context for the analysis. Users are encouraged to explore not only the “how to use the maps,” but also the “why use the maps.”

TEMPORAL ANALYSIS

The interactive web-based tool developed for the Mapping the Media in the Americas project allows users to explore digital maps, think temporally and spatially, and express opinions about the selection of various criteria related to the media, demographic and electoral information mounted on the web-site.

Context

Why do countries have political cleavages and how do they change over time? A socio-political cleavage is more than an important division within society. To be called a cleavage such a division must fulfill three defining requirements. First, it must involve one of the primary determinants of social identity – for example religion, employment, or ethnicity. Second, the (usually two) groups opposed by the cleavage must be aware of and prepared to act on the basis of their con-
flicting identities. Third, the social division must lead to the creation of organizations and/or formal institutions (e.g., trade unions, political parties), which represent and defend the collective identity, and confront those organizations which inherently or explicitly represent the opposing identity across the cleavage.

**Step 1: Refine Your Research Question**

One of the functions of the Mapping the Media in the Americas website is the ability to compare socio-political variables over time. For this example, the country of Peru is chosen to explore social political cleavages.

**Research Question: Are socio-political cleavages evident during the past two Peruvian elections?**

**Step 2: Select Data**

**Background**

The first round of the 2006 Peruvian national election was held on April 9, 2006 to elect the President of the Republic, two Vice-Presidents, 120 Members of Congress, and five Peruvian members of the Andean Parliament (plus 10 substitutes), for the 2006-2011 period. No single presidential ticket obtained more than half of the total valid votes, thus leading to a runoff election held on June 4, 2006 between the two candidates with the most votes, Ollanta Humala and Alan Garcia.

Alan García defeated Ollanta Humala in the Second Round, 52.62 percent to 47.47 percent, after apparently capturing most of Lourdes Flores’ First Round votes, despite no official endorsement by National Unity. García won in the densely-populated Lima and abroad, and took over Pasco, Tumbes and Ucayali, where Humala had won previously.

Each candidate’s strongholds remained the same: the northern and central coast for García, and the southern Andes for Humala. García improved from 16.9 percent to 68.5 percent abroad and from 21.8 percent to 62.0 percent in Lima, the locations of both of Flores’ victories in April. Humala obtained his strongest victory in the region of Ayacucho winning 83.42 percent to García’s 16.57 percent. García had his greatest margin of victory in La Libertad with 72.54 percent to Humala’s 27.45 percent. García also won a majority in all of the 43 districts of Lima Province and the six districts of Callao.

The results of the second round of the election left a strong impression on many observers, yet some aspects of this deserve reconsideration in light of the first round. The most powerful image from the second round is a map of a country divided between north and south, and between the coast and the sierra. Ollanta Humala won a majority of Peru’s departments, especially in the south, while Alan Garcia captured the north. Lourdes Flores did best in Lima, and her votes were transferred to Garcia. The geography of the vote created the impression of a powerful fracture along class, region, and ethnic lines, divisions that can be traced to the 19th century and earlier.

**Selecting Data**

Access the web-site Mapping the Media in the Americas at www.mediamap.info. Ensure your browser will accept pop-ups for this website: please turn off the pop-up blocker. Select the preferred language in which to read the maps, click the tab “interactive maps” and click Peru. Take some time to familiarize yourself with the folder layout, tools and short explanations available on the web-site.

Activate another browser, access the Mapping the Media in the Americas and arrange them both on your computer screen together, side by side (see Figure 1 on page 3).

**Step 3: Display Data as a Map**

Open the folders on the left of the screen (by mouse click) which contain the variables of interest as map layers. Under “Electoral Information” look for 2001 winners and 2006 winners folders.

Navigate to the layers of interest from Step 2, mouse click in the square on each layer to make it “Visible” on the map of Peru; then “Activate” the layers by mouse click in the circle – this means the database that drives the map may be accessed (see Figure 2 on page 3).
Step 4: Look for patterns, generate hypotheses

When the second round election is placed in context, it reveals both past cleavages and new fractures, changes and continuities. In some ways, the results of the second round in 2001 and 2006 are very similar. The vote for Alejandro Toledo and ‘Peru Posible’ in 2001, and the support for Ollanta Humala and the ‘Union Por el Peru’ in 2006, are virtual mirror images.

Voting patterns for ‘Peru Possible’ and ‘Union Por el Peru’ are similar because they represent the “left” of the political spectrum. From the maps it is clear that people voted along the same party lines in both years (in general, the same people voted left both years, and vice versa), except for a small number of provinces that changed their vote in 2006 and supported the centre-left party, the American Popular Revolutionary Alliance (APRA), who went on to win the election.

Overlay the census data to look for visual correlations – cleavages may be based on class, ethnicity, religion, etc. The following two maps show Illiteracy Rates and Quechua speakers respectively (Figure 3 and 4).

As illiteracy and ethnic variables can sometimes be indicators of poverty, we can observe that Southern Peru and the Andean regions have higher levels of poverty. Likewise, coastal regions and the north have lower levels of poverty.

Clearly, political cleavages exist along lines of class and income in Peru. From the maps, we can see that poorer, Indigenous Peoples tend to vote for parties of the left, such as ‘Peru Posible’ and ‘Union Por el Peru,’ while wealthier citizens on the coast and north tend to vote for the centre-left parties, such as the APRA. Parties of the left tend to appeal to lower-class social groups because they support policies that benefit the poor, for example. For this reason, lower-income Peruvians voted largely for Humala in 2006. Centre-left parties take a more moderate approach to the economy and are more likely to capture the votes of the wealthier populations. In 2006, Garcia captured the majority of the vote in the wealthy regions of Lima, as well as gained votes from Lourdes Flores in the second round, holding strong support among the country’s wealthier citizens.

In 2006, the left lost votes in some of the lower income regions in the Southern provinces near Cusco, as well as the jungle regions in the east. However, the left did not lose the support among all lower-income provinces. We can hypothesize about this change. Perhaps Humala’s extreme policies alienated more moderate voters, or Toledo’s unpopular policies may have caused some voters to become disenchanted with left wing parties.

Historical cleavages have always divided Peru. Further research will be necessary to explain the continuities and differences between the 2001 and 2006 elections, and lead to important insights about this important electoral process.