1. The output on my end shows:

> g1966@proj4string

CRS arguments:

+proj=utm +zone=12 +datum=NAD83 +units=m +no\_defs

In this case, Zone stands for an area denoted by the UTM projection, which divides the Earth into sixty zones. A projected coordinate system is basically defining the earth’s surface on a flat, tow-dimensional surface, and it has constant length, angles and areas across the two dimensions. In this system, locations are defined by x and y coordinates on a grid, denoting their relative horizontal and vertical distance from the center of that grid. Based on the info above, we can see that the spatial projection is meant for a specific area in North America, under the definition of The North American Datum of 1983.

2. The background imagery is very green, meaning that the mountain range we are looking at has a lot vegetation. Most of the glaciers defined by the shapefiles are mostly surrounded by the white color from background, basically within the snow line. Most of the glaciers are located in the top right half, and there’s only small part that is close to the towns on the bottom left.

3. Given the graph is a bit hard to read, I think that there are some differences in glacial recession across the space we are investigating. Namely, at the top left corner, almost half of the glacier disappeared, but for the middle/lower area, most of the decrease of glacier seems to be not as severe.

4. The top two small patch did not lose much from 1966 to 2015, and the most recession takes place on the center of the image. In the center portion, the top left glacier lost approximately 30% on the northern end; for the central part, recession took place around the glacier equilibrium line (those areas are still “white”, but most likely converted from accumulation zone to ablation zone), and overall seems like a 20% lost; the tiny strip to the right experienced more recession, and around 60% of the coverage is gone.

5.