

USE OF GOOGLE ANALYTICS AT THE KACHINA PEAKS AVALANCHE CENTER, ARIZONA

Troy A. Marino*

Kachina Peaks Avalanche Center, Flagstaff, Arizona

ABSTRACT: For five seasons, the Kachina Peaks Avalanche Center (KPAC) has used Google Analytics (GA) to track usage of the KPAC website kachinapeaks.org. KPAC wanted to know how many website users view the snowpack summaries, whether or not that number is changing, where users are from, how long they are on the summary page, and how often they access kachinapeaks.org with smartphones. Furthermore, KPAC wondered if there was any correlation between snowpack summary user views, snowpack summary publish dates, and snowfall amounts.

GA data shows that over the last four seasons, users of the snowpack summary has increased by 41%, and the number of local Flagstaff, AZ, users who accessed the snowpack summary has increased by 95%. Users spend an average of nearly three minutes on the snowpack summary page.

Analysis reveals that 52.7% of the snowpack summary page views are from a mobile device (smartphone).

Increases (spikes) in the number of daily users correlates closely with increases in snow pack depth (storms) and dates that KPAC published the snowpack summary.

The GA data is validation that the KPAC snowpack summary is useful for backcountry enthusiasts of the San Francisco Peaks mountain range in northern Arizona. GA data also indicates that KPAC will better serve users by redesigning kachinapeaks.org so that the website functions more efficiently on mobile devices (smartphones).

By integrating Google Analytics, KPAC now has metrics that can help to refine the KPAC website, thus better understanding and communicating with KPAC users.

KEYWORDS: Google Analytics, website, snowpack summary, communication, KPAC, Arizona.

1. INTRODUCTION

Google Analytics (GA) is a web analytics service offered by Google - <https://www.google.com/analytics/>. This service has been available for 10 years. Website owners or webmasters of a website embed a small amount of unique JavaScript into their web page. This reports website visitor activity back to Google servers. Webmasters are able to query the data through an online GA dashboard.

For five seasons, the Kachina Peaks Avalanche Center (KPAC) has used GA to track usage of the KPAC website kachinapeaks.org. Snowpack summaries first began in December of 2012, thus

there are four seasons of GA data for the snowpack summary web page.

KPAC can now answer questions such as how many users view/read the snowpack summaries, whether or not that number is changing, where users are from, how long they are on the summary page, and whether or not they are accessing kachinapeaks.org with mobile devices (smartphones). Also, KPAC can compare snowpack summary user counts with dates that KPAC published the snowpack summary, and with snowfall amounts. For this study, website **user** and **visitor** are undifferentiated.

KPAC is a small non-agency and non-profit avalanche center serving backcountry users of northern Arizona since 2005 (Lovejoy, 2006). In 2012 KPAC began publishing seasonal snowpack summaries (<https://www.kachinapeaks.org/snow-pack-summaries/>) once a week or as snowfall warranted.

KPAC snowpack summaries are for a single mountain range, the San Francisco Peaks of northern Arizona. Humphreys Peak rises to 12633'

* *Corresponding author address:*

Troy Marino
3328 N. Manor Rd.
Flagstaff, AZ 86004
tel: 928-853-6656
email: troy.marino@kachinapeaks.org

(3851 m). This range is near the city of Flagstaff, Arizona.

2. QUESTIONS

2.1 How many users view/read the snowpack summaries? Is that number changing?

To answer this, queries/reports were constructed on the GA dashboard. KPAC specifically looked at unique visitors to the snowpack summary page between December 1st and March 31st of the last four seasons - 2012/2013, 2013/2014, 2014/2015, and 2015/2016. A **unique visitor** or **user** is defined as a single user. Specifically we will look at unique users who access the snowpack summary page, one or more times during a given season (December 1st through March 31st).

2.2 Where are users from?

KPAC was interested in how many unique visitors (users) of the snowpack summary are from Arizona and Flagstaff. Again, KPAC decided to look at this data on a per season basis (December 1st through March 31st), using the last four seasons. The data is readily available through constructing queries/reports on the GA dashboard.

2.3 How long do users spend viewing/reading the snowpack summary?

To answer this, the average time on the summary page was queried using the GA dashboard. KPAC looked at user sessions from December 1st through March 31st of the last four seasons.

Google defines a **session** as a group of interactions that a website visitor takes within a 30 minute time frame. A user may have more than one session during a season. For instance, if a user visits the kachinapeaks.org on 10 different days during a season, then this would count as 10 sessions for that user.

2.4 How many users access the kachinapeaks.org with a smartphone?

GA can determine the device that visitors use to access a webpage. KPAC was interested in the percentage of sessions where visitors accessed the website with a mobile device during the last four seasons.

2.5 Is there a correlation between snowpack summary user counts, dates that KPAC

published the snowpack summaries, and snowfall amounts?

For this, the count of daily unique users from November 1st, 2015, to May 1st, 2016, was plotted with both snow depth and the dates that KPAC updated the snowpack summary. Snow depth data was collected from SNOTEL site 927 located at 9730' (2966 m) within the San Francisco Peaks.

3. ANSWERS AND DISCUSSION

3.1 How many users view/read the snowpack summaries? Is that number changing?

The KPAC website had the highest number of total users, Arizona users, and Flagstaff users in the most recent season (2015/2016) (Fig. 1). Snowpack summary user numbers have increased over the last two seasons.

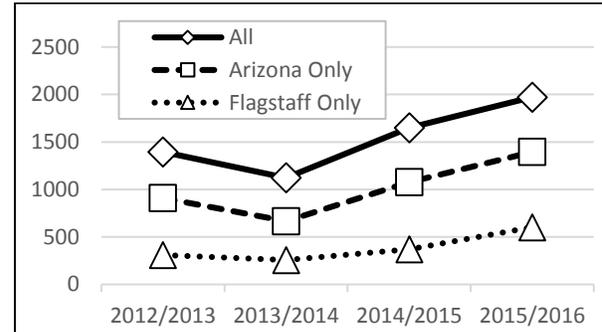


Fig. 1: Count of unique visitors (users) of the snowpack summary. December 1 through March 31 for the last four seasons.

3.2 Where are users from?

Using data from Fig. 1, the total number of users of the snowpack summary in 2015/2016 was 1972, with 1395 users (71%) from Arizona. Of the total, 602 users (31%) are from Flagstaff, Arizona – near the San Francisco Peaks.

3.3 How long do users spend viewing/reading the snowpack summary?

Looking at the last four seasons, visitors spend an average of 2 minutes and 51 seconds on the snowpack summary page. This may be an underestimated value, because the bounce rate of the snowpack summary page is close to 80%.

A **bounce** is a session in which the website user only views one page. Nearly 80% of the snowpack summary sessions are bounces, and GA cannot calculate the view/reading time for bounces.

3.4 How many users access the kachinapeaks.org with a smartphone?

The percentage of visitor sessions in which users access kachinapeaks.org from a mobile device has increased every season over the last five seasons (Fig. 2). Looking only at the snowpack summary page, sessions from mobile devices was over 50% in the most recent season (Fig. 2).

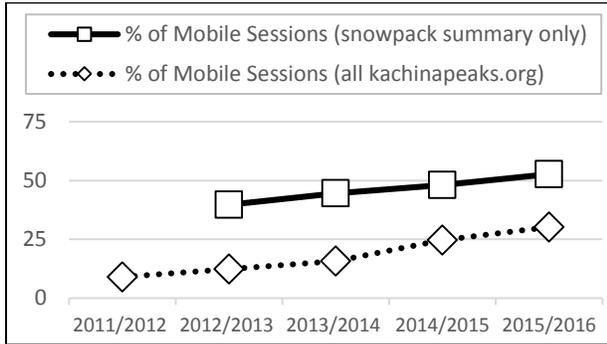


Fig. 2: Percent of visitor sessions on a mobile device, relative to desktop and tablet devices. The snowpack summary was first published during the 2012/2013 season.

Note that in this original abstract submission (spring 2016), percentage of mobile sessions had been calculated with respect to only desktop devices. This has been corrected and the new calculation is relative to both desktop and tablet devices.

3.5 Is there a correlation between snowpack summary user counts, dates that KPAC published the snowpack summaries, and snowfall amounts?

The relationships between snowpack summary users, snow depth, and summary updates are presented (Fig. 3). Spikes in the number of daily unique users correlates closely with increased snow depth (storms) and dates that KPAC published the snowpack summary. Keep in mind that when the snowpack summary is updated, KPAC sends out text and email notifications, and posts to Facebook. These notifications/posts have a website link to the snowpack summary webpage.

Interestingly the high point of snowpack summary users (192) occurred on January 8, 2016, the same day that we published a new snowpack summary and the same day that SNOTEL site 927

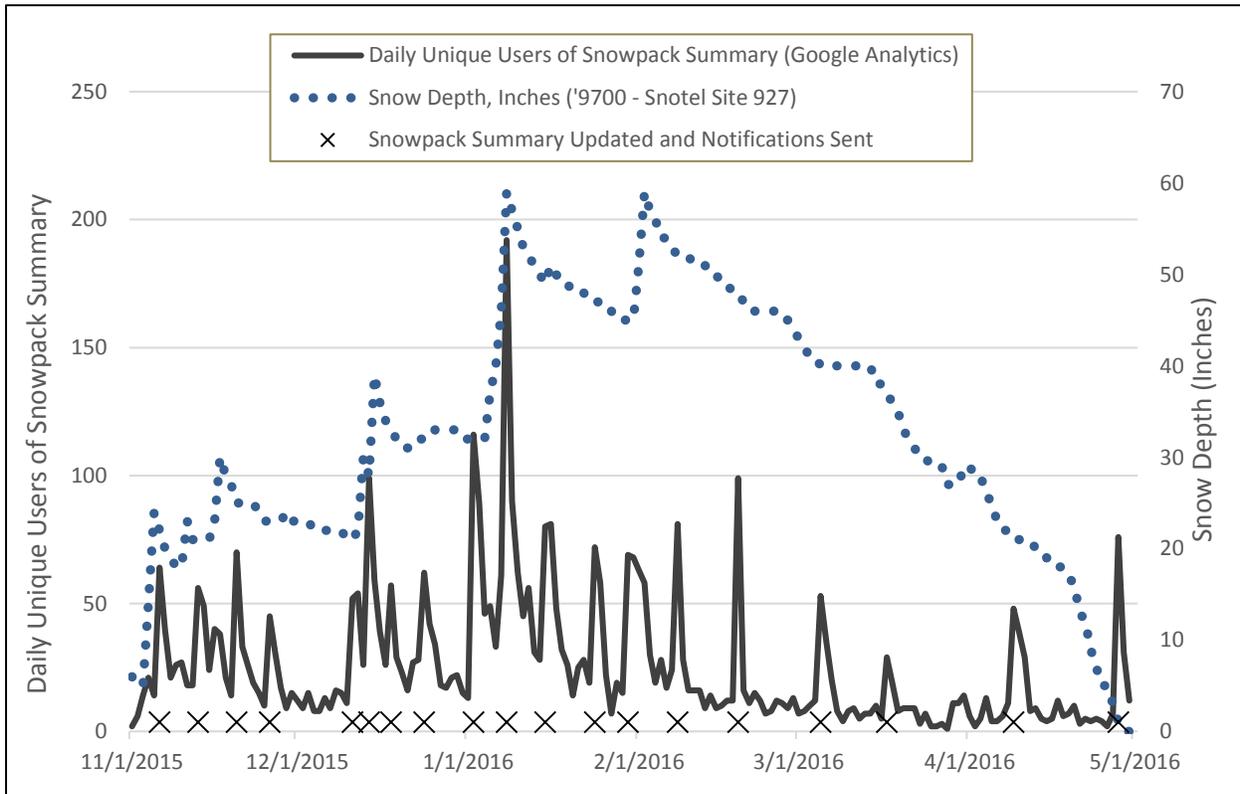


Fig. 3: Snowpack summary daily users compared to snow depth and summary Updates/Notifications. Data from the KPAC 2015/2016 season.

recorded a snowpack depth of 59" (150 cm) - the largest measurement for the season at that location.

4. CONCLUSIONS AND DISCUSSION

GA data shows that over the last four seasons, the unique users who accessed the kachinapeaks.org snowpack summary has increased by 41%, from 1395 users in 2012/2013 to 1972 users in 2015/2016. The most recent season of 2015/2016 had the highest number of snowpack summary visitors.

The number of local Flagstaff, AZ, users who accessed the snowpack summary has increased by 95%, from 308 users in 2012/2013 to 602 users in 2015/2016.

Using data from the last four seasons, users spend an average of nearly three minutes on the snowpack summary page.

Analysis reveals strong growth in the number of users that access the website from smartphones. In the most recent season, 30% of website sessions were from users on smartphones. Looking only at the snowpack summary data, 52.7% of sessions were from smartphones. If the trend continues, then within five years 70% of users who access the snowpack summaries may do so from smartphones.

Based on this data, KPAC suspects that most of the new users (over the last two seasons) are accessing the website mainly via mobile devices. KPAC would need to further query the GA data to definitively answer this.

KPAC uses Facebook, email, and text notifications when the snowpack summary is updated. Further GA queries may allow KPAC to ascertain the effectiveness of each notification medium. KPAC is all but certain that notifications account for the increased user spikes seen in the snowpack summary daily user data (Fig. 3). Further GA queries and web-link referencing could prove or disprove this assertion.

The GA information is validation that the KPAC snowpack summary is useful for backcountry enthusiasts of the San Francisco Peaks mountain range in northern Arizona. And despite that the last two seasons have had average to below average snowfall, the number of users that view the snowpack page has increased over those two seasons (Fig. 1).

GA data also indicates that KPAC will better serve users by redesigning kachinapeaks.org so that the website functions more efficiently on smartphones. Currently a KPAC website redesign is underway and we hope to have a new mobile friendly site in place before the New Year 2017.

By integrating Google Analytics, KPAC and any avalanche center can gain insight into their user base, refine their website, and thus better communicate with users.

5. ACKNOWLEDGEMENTS

The Kachina Peaks Avalanche Center and this work would not be possible without the efforts of David Lovejoy, Derek Spice, Patrick McGervey, the KPAC board of directors and advisors, and numerous volunteers. Thanks to Dara Marks-Marino for the editorial input.

6. REFERENCES

- Lovejoy, D., Dexter, L. and Tatsugawa, K., 2006: Challenges to an Avalanche Center in a Time of Seasonal Climate Variability: A Case Study. Proceedings of the *International Snow Science Workshop*, Telluride, CO, 683-690.