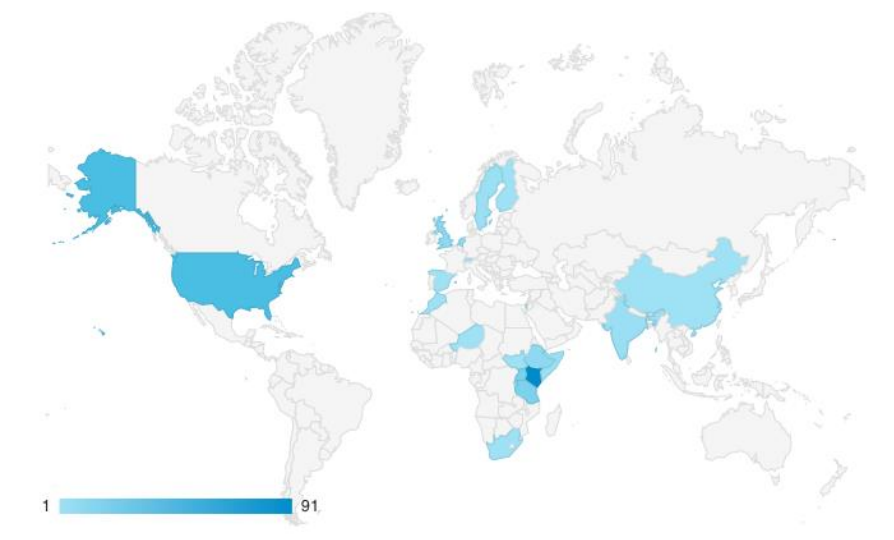

ENACTS

ENHANCING NATIONAL
CLIMATE SERVICES

Dissemination Strategy for WISER ENACTS Implementing Countries



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Contributors

Madeleine Thomson

John del Corral

Tufa Dinku

Pamela Jordan

Aisha Owusu

Yohana Tesfamariam Tekeste

Jeff Turmelle

International Research Institute for Climate and Society, Columbia University, New York.

Contact: mthomson@iri.columbia.edu

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Introduction

ENACTS Goal and Objectives

The goal of the Enhancing National Climate Services (ENACTS) initiative is to provide reliable and readily accessible climate data at high resolution to decision makers across Africa. ENACTS delivers robust climate data, targeted information products and training that's relevant to user needs, enabling them to apply climate information to decision making with confidence. The core of ENACTS is summarized in the following three objectives:

- Objective 1: Improve availability of quality assured climate information products on the past, present and future climate at the national and local levels through the development of historical and monitoring climate information at the national level by blending all relevant quality controlled national observations with global products.
- Objective 2: Enhance access to climate information products and services relevant to the needs of the public, national and local practitioners in climate sensitive sectors, policy makers, private sector and researchers through web interface that uses IRI Data Library technology and linked to National Meteorological Agency's Website.
- Objective 3: Unleash pent up demand for climate information through substantive improvements in user ability to integrate ENACTS services and products into decision-making processes based on evidence of utility and cost-effectiveness.

Why a dissemination strategy?

In order to achieve the third objective, a strategy is needed for the dissemination of the ENACTS products and services. This is to be achieved through:

- 1) broad engagement of stakeholder communities
- 2) routine monitoring of requests for ENACTS data products and services and identification of new opportunities
- 3) routine monitoring of ENACTS Maproom traffic to see if, when and how Maproom information is being used and using the information to build the dissemination strategy

Broad engagement of stakeholder communities

We consider three types of dissemination for a wide range of stakeholders including policy-makers, researchers, practitioners. They are:

- 1) awareness,
- 2) understanding, and
- 3) action.

Dissemination for Awareness

At minimum, we wish people (ranging from policy makers, technical experts, students, members of the public etc.) to be aware of current ENACTS products and services and potential future services. Awareness is important for those who may positively (or negatively) influence the enabling environment for ENACTS uptake, funding and institutional support. Awareness

may also engage potential users of ENACTS products and services. In particular widespread awareness may allow a broad community of “**autonomous users**” to be created at no additional cost to the NMHSs in terms of time and resources, ENACTS Maproom services have the potential to inform a very wide user base. Creating awareness of the ENACTS initiatives’ work will help the “word of mouth” type dissemination and help build an identity and profile for the NMHSs within a broad stakeholder community. An example of ENACTS dissemination for awareness is the presentations and panel discussions NMA and IRI staff participated in at the African Ministerial Conference on Meteorology (AMCOMET) in September 2017. A report on the health panel can be found in the [Clim-Health newsletter](#).

Dissemination for Understanding

There will be a number of technical groups/audiences that we will need to target directly with ENACTS technical materials (including peer review publications, reports, and blogs) appearing in communication vehicles commonly used by the target audiences. In addition, this community will increasingly have access to relevant training materials. These technical groups (including research communities) should understand what is currently available through ENACTS and what is potentially on offer. They could be partners in the development of ENACTS products and services as “**engaged users**” since they have the potential to create demand for new or revised deliverables. It will be important, therefore, that these groups/audiences have a deeper understanding of ENACTS activities and what it can do for them in particular. An example of this is the Climate Services for Resilient Development Technical Exchange held in August 2017. The full report can be found [here](#).

Dissemination for Action

Dissemination to action-focused front-line service delivery personnel should result in a change of practice owing to the adoption of ENACTS products, materials or approaches. These groups/audiences will be those people that are in a position to “bring about change” within their organizations through practical demonstration. They are our “**active user**.” These are the groups/audiences that will need to be equipped with the right technical skills, knowledge and understanding of ENACTS to use products and services routinely as well as the communication skills to effect change. There is a very high number of people with the potential to utilize the ENACTS data and information products. The report on the trainings of the National Malaria Control Program of Tanzania shared in Appendix 1 is a good example of dissemination of ENACTS for action.

A draft dissemination strategy for the development of ENACTS at the global, regional, and national levels was elaborated at the ENACTS implementers workshop (see Appendix 2). IRI staff elaborated a global strategy while ICPAC staff elaborated the regional strategy and four NMHSs developed a strategy for their national organizations. The process was designed to help clarify which type of dissemination pathway was needed – i.e. for awareness, understanding and/or action – for which communities. The NMHSs had no problems identifying many opportunities for sharing information on ENACTS with a broad range of stakeholders but still struggled with identifying clear processes for follow up engagements in part because data

policies are not clarified in all countries (with the exception of Ethiopia which has a new cost recovery policy which includes ENACTS data).

Routine monitoring of requests for ENACTS data products

All ENACTS implementing countries are encouraged to record in detail each request for ENACTS data or products. This is undertaken systematically in some countries (Ethiopia) and in an adhoc way in other countries. These records can be used to provide information on the individual or institution that is requesting the data its planned use. One opportunity to share the records of ENACTS data use is at the ENACTS Implementers' workshop. For example the use of ENACTS data for research activities in Ethiopia are summarized [here](#). Maproom use is also reported to IRI staff from NMHS staff and users – particularly when a training effort has been underway.

Routine monitoring of ENACTS Maproom traffic

ENACTS products and services are made available via web enabled Maprooms using IRI Data Library technology which is implemented at the National Meteorological and Hydrological Services. Understanding the broader context of these services can help us better identify how to make them as effective as possible and also understand the limitations that may be imposed from external factors.

ICT in Africa

The emergence of the internet in the 1980's and the arrival of the WorldWideWeb (WWW) as a publically available communication service in 1991¹ has revolutionized the ability of National Meteorological and Hydrological Services (NMHSs) worldwide to access and share climate and environmental data with specialist communities and the public. The WWW enabled documents, data and other web resources to be identified by Uniform Resource Locators (URLs), interlinked by hypertext links can be accessed via the internet. Improved communication via the internet has the potential to remove key knowledge barriers to the uptake of climate information products and data while technical barriers continue to diminish with (i) increasing accessibility via the internet to petabyte-scale archives of meteorological observations, remote sensing data and model outputs that have become freely available from multiple sources and (ii) increasing power and declining costs of computer processing and data storage facilities (including large cloud computing).

This is particularly important in Africa where internet development has made great progress since the mid-1990s, and especially in the 2000s following changes in policies and regulations. Before 2009, the only way to connect to the world from sub-Saharan Africa were through satellite connections, which are very expensive and low in capacity. The new submarine connections led to a remarkable increase in data transmission capacity and drastically reduced the transmission time and cost. Despite these changes Africa remains the continent with least access to internet. Continued rapid growth of African populations' significant appetite for ICT

¹ https://en.wikipedia.org/wiki/World_Wide_Web

and incomplete market saturation mean that there will be a growing market for internet and mobile phone technology in the coming decades.

ICT capacity: Implications for WISER ENACTS implementation and uptake

Internet penetration and bandwidth has significant implications for ENACTS development in old (Ethiopia, Kenya, Tanzania, Rwanda, Uganda) and proposed (Burundi, Somalia, South Sudan) WISER countries. The potential to disseminate climate products and services via Maprooms provides an enormous opportunity for NMHSs to extend their capacities and reach both within the met services and externally to national and international users. Having a stable internet with sufficient bandwidth is an essential pre-requisite for this to happen. An internet-based climate service also provides significant challenges to the NMHSs in maintaining a 24/7 services, ensuring climate services are available to users whenever they want to access them. The potential for wide-scale uptake of information products and services is dependent on internet penetration across the country – with access made possible via smart phones where possible.

Making climate data and products visible on the internet also challenges NMHSs to consider their data sharing policies, to bring them into line with the new government directives and to identify opportunities to maximize its ability to support other government agencies and national partners while at the same time securing the NMHSs financial future.

The WISER countries and ICPAC have the capacity to disseminate climate information from their Maproom websites in a number of formats including 1) images of derived climate products; 2) derived climate data products; 3) images of climate products aggregated in space and/or time; and 4) climate data products aggregated in space and/or time. While ENACTS data and products can be created at the NMHSs and disseminated via email or printed on paper, a significant opportunity for wide-scale uptake and use of ENACTS products is their availability (at least visually) online.

An analysis of internet penetration² in WISER countries (Figures 1-4) indicates that the best opportunity for reaching the most people with a web-based climate service is in Kenya and Tanzania where population numbers and internet penetration is high.

The three countries planned for the development of ENACTS services under the Fragile States project have relatively small populations (<10M) and very low internet penetration. Services developed will likely inform higher level administrators and aid organisations but will take considerably more effort to reach local communities.

² <https://www.internetworldstats.com/stats1.htm>

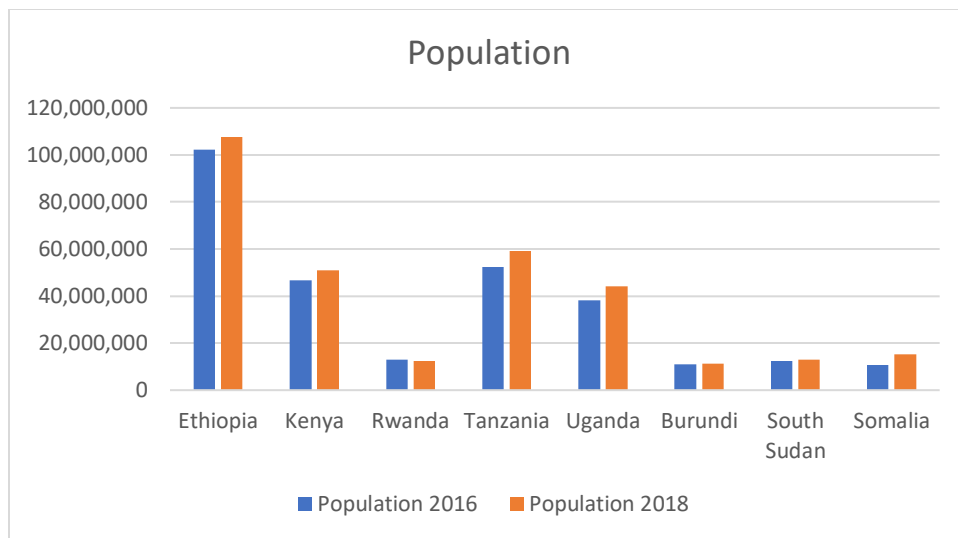


Figure 1 Changes in population between 2016 and 2018

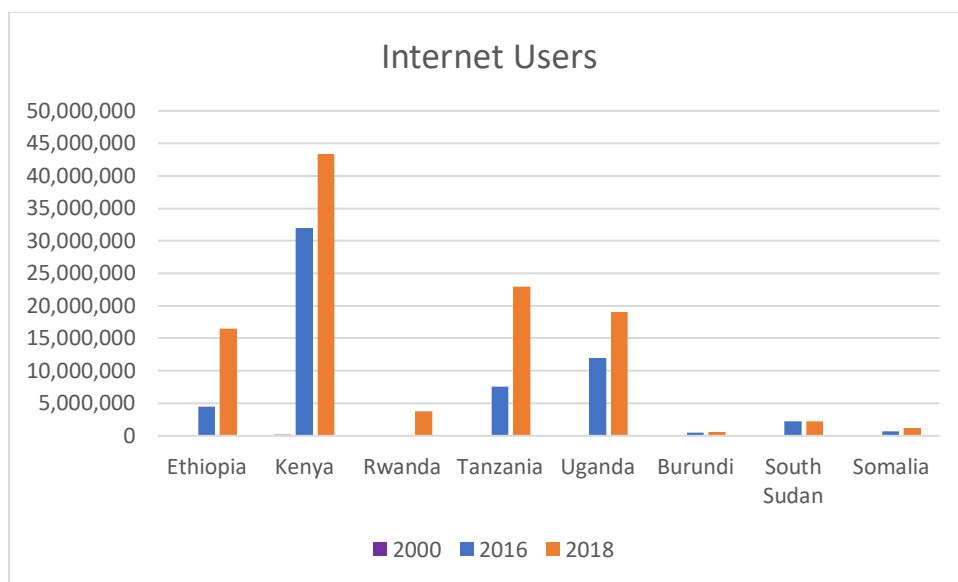


Figure 2 Changes in internet users between 2000, 2016 and 2018

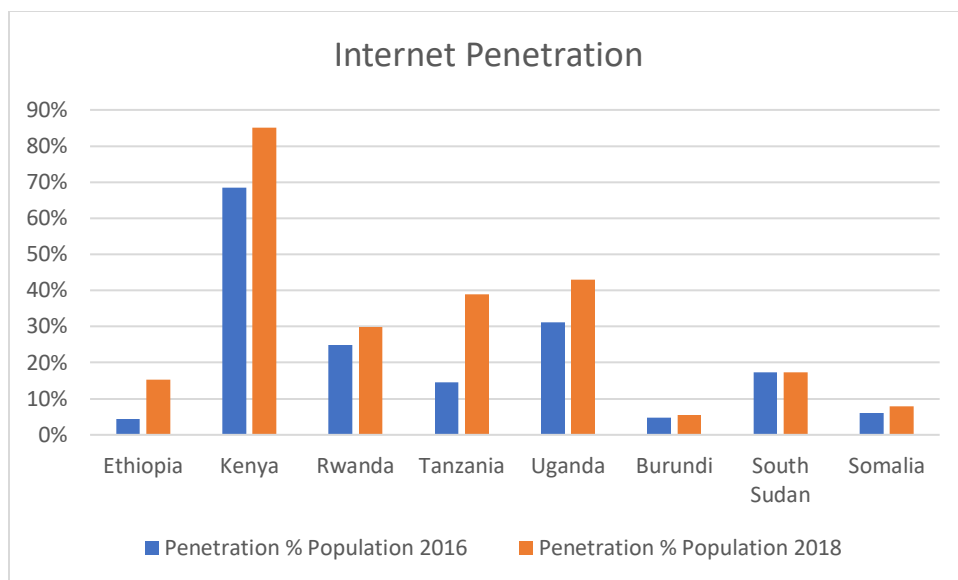


Figure 3 Changes in internet penetration between 2016 and 2018

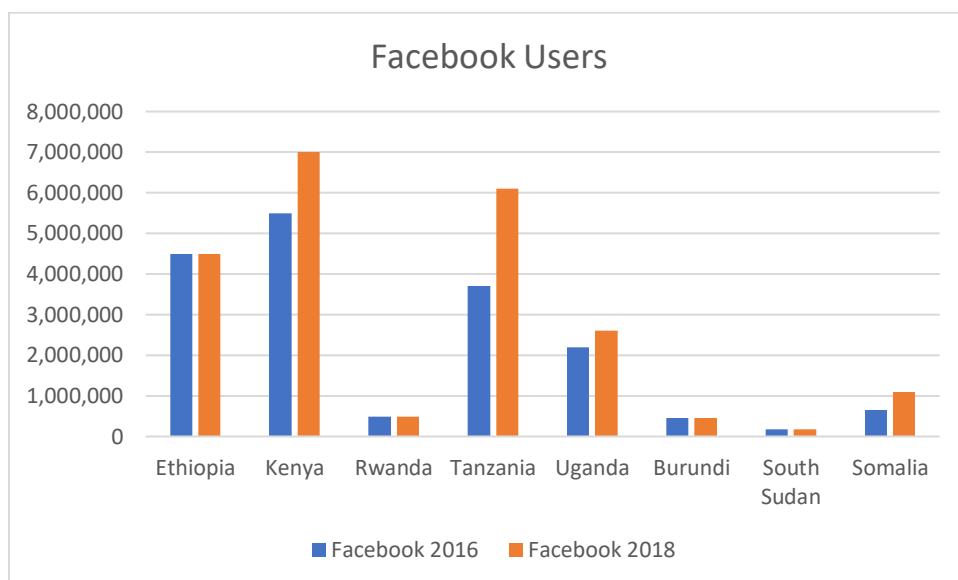


Figure 4 Changes in Facebook users between 2016 and 2018

Monitoring ENACTS Maprooms for quality of service and uptake

ENACTS is currently monitored by IRI staff with the permission of NMHSs with three separate systems as described below. Information gained is shared with NMHSs routinely or on request.

Maproom Uptime

For all ENACTS countries, IRI monitors the availability of the Maproom servers every 5 minutes. There is considerable variability in the availability Maprooms between countries and over time. Maproom availability can be affected by many things including internet function, power availability, and various other challenges.

IRI staff and NMHS staff receive email alerts whenever their Maprooms are unavailable. The notifications allow problems to be corrected more quickly. The data regarding whether the Maprooms are available are gathered in order to give an illustration of how each country's Maprooms are doing over time and what, if any, corrective measures need to be taken to ensure a 24/7 service.

Google Analytics

Google Analytics is a free website analytics service offered by Google that gives you insights into how users find and use your website. It tracks and reports on website traffic. It uses a unique tracking code (Tracking ID) that is installed in each webpage. The code is a small snippet of Javascript, a coding language that runs in viewers' browsers when they visit those pages. We can use it to learn about the audience, how they got to the Maproom page, how long they stayed on the page, where they are located, and real-time visualization of use including graphs and maps. Google Analytics is limited because in some cases, ENACTS servers are firewalled so the Analytics doesn't always pick up all of the information. Despite establishing Google analytics capability in all old WISER countries – only ICPAC and Rwanda provide useful information.

AWStats

AWStats is a similar analytics service that monitors traffic to the Maprooms. Instead of using information provided by the internet (as per Google Analytics) it analyses the log files. Every time someone uses the Data Library, it writes data out to log files. AWStats reads through the log files and creates a series of summary reports.

ENACTS Maproom monitoring results are detailed in Appendix 3 of this report. A summary of analysis for 2017 is provided in Table 1. Now that we are able to consistently monitor the use of ENACTS, we can learn much more about autonomous users and what some of the barriers to Maproom use may exist.

The tools used for monitoring allow IRI and ENACTS countries to monitor the success of events aimed for dissemination of ENACTS. For instance, if a training is held on a particular country's Maprooms, you could look to see whether the Maprooms saw increased traffic afterwards. The Maproom availability tracking allows us to observe where Maproom availability may be negatively impacting the Maproom use.

Table 1 Summary of results from Maproom analytics for 2017

	ICPAC	Ethiopia	Kenya	Rwanda	Tanzania	Uganda
Email alerts	<u>yes</u>	<u>yes</u>	yes		yes	
Google analytics (start)	good	poor	poor	good	poor	not available
AWStats (start)	available	available	available	limited historical availability	available	available
Monthly Maproom use 2017	78 users ~ 420 interactions/ user/ month.	210 users ~ 200 interactions/ user/ month.	78 users ~435 interactions/ user/month.	insufficient data	Insufficient data	Insufficient data
User origin 2017	not available in AWStats, Google analytics indicates Kenya, USA IGAD region, as main user origin	AWStats indicates 24% from USA, west Africa and then East African countries.	AWStats indicates 75% of use from USA, west Africa, Kenya	AWStats indicates 29% from USA, West Africa, Zambia, Madagascar, Kenya	AWStats indicates 25% from USA, west Africa, Zambia, Madagascar, Tanzania	AWStats indicates 91% from USA, unknown and the sporadic global origin
Trend over all	increasing	stable	increasing	increasing	increasing	unknown
Uptime (2017)	excellent	poor	excellent	excellent (information available from alternative source)	good	poor

Conclusion

The long-term sustainability of ENACTS is dependent upon user demand, which is in turn dependent on the awareness, understanding and actions of a wide range of current and potential stakeholders. The NMHSs need to build a dissemination strategy for ENACTS that is compatible with their capacities and long term strategic plans. Stakeholder communities also need to shape this dissemination strategy to service their own interests. It is clearly an iterative process and different NMHSs and country settings will significantly influence how the process develops. With the analysis of Maprooms logs we now have a baseline for Maproom use for ICPAC and NMHSs that can be refined and further developed. It can be used as a monitoring tool to observe where, when and how Maproom information is accessed.

The United Republic of Tanzania



**Ministry of Health, Community Development, Gender, Elderly
and Children**

Malaria Surveillance & Response Training Roll-out in Tanzania

November 2017

**National Malaria Control Program
&
Swiss Tropical and Public Health Institute**



NATIONAL
MALARIA
CONTROL
PROGRAMME

Swiss TPH

Swiss Tropical and Public Health Institute



Recent efforts in malaria control in Tanzania has contributed to the changes in the epidemiological profile of malaria in the country. As prevalence across the country continues to decline and heterogeneity in transmission increases, a timely and accurate surveillance system becomes increasingly important to chart the transition from malaria control to elimination stage. The complex context of malaria transmission, which includes the parasite, the vector, the human host, as well as multiple factors related to the environment and health system context, requires a systematic and operationally feasible surveillance approach. A suitable malaria surveillance-response system must therefore include key indicators relating to the disease that can be used to trigger additional investigations and direct targeted response action. For this purpose, the comprehensive surveillance framework for Tanzania includes four major elements: (i) disease surveillance, (ii) programmatic surveillance, (iii) transmission surveillance and (iv) quality services surveillance.

To streamline the comprehensive malaria surveillance framework and make it helpful, practical and informative for the malaria control implementing teams, some data elements within DHIS2 platform were selected and further developed to repackage them into simple outputs in the form of charts and maps. The major criteria for selection were the routine collection in health facilities through the Health Management Information System tools (HMIS) and its availability in the DHIS2 platform. A total of 5 groups of indicators were selected, according to the service delivery departments: a) Uncomplicated Malaria Diagnosis from the Outpatient (OPD); b) Malaria Test (Laboratory); c) Malaria Commodities (Pharmacy); d) Severe Malaria Morbidity and Mortality (IPD); and e) Preventive services (RCH). These groups of indicators have been systematically included into a comprehensive web-based malaria dashboard within the DHIS2 to facilitate their access and utilization.

Following the development of malaria dashboard, capacity building of regional and district health teams comprising of 7 people from each region and district was initiated in September 2017 and is currently being conducted across the 26 regions of Tanzania (see table 1) to orient them on the effective use of the dashboard, describe and identify key issues from the various outputs from the different departments and provide appropriate response action plans. To complement this, the climate and maproom training package developed by IRI is also being disseminated to local government authorities as part of the malaria surveillance and response training. Climate information, together with parasitological and entomological variables, is expected to inform health teams about the intensity of transmission and heterogeneity. They can then use this information to provide appropriate response actions at regional, district and health facility level. The availability, access and use of climate information in Tanzania has greatly improved as a result of the ENACTS initiative. The TMA Malaria Maproom uses historical data to show the number of months with climate conditions that are suitable for malaria transmission. It can aid in forecasting of increased risk of malaria transmission by using specific ranges of various indicators such as temperature, precipitation and humidity levels. These tools have allowed National Malaria Control Program (NMCP) in various decision-making activities such as planning for where and when health supplies should be distributed.

The roll-out of the malaria surveillance training manuals and maproom training package are expected to enhance the usage and linkage of climate and malaria data in the country, enhance timely identification of issues, detecting crucial monitoring trends from the different departments and initiating an effective response by respective regional and district health teams.

Table 1: TIMETABLE FOR MALARIA SURVEILLANCE ROLLOUT TO RHMT AND CHMT, September to December, 2017

No.	Dates	Regions	# of Districts	# of people trained	Venue
1.	25/9 – 28/9/2017	Arusha	7	112	Mirembe - Dodoma
		Kilimanjaro	7		
2.	27/9 – 30/9/2019	Tanga	11	84	Mirembe - Dodoma
3.	2/10 – 5/10/2017	Morogoro	9	119	Telecommunication college – DSM
		Pwani	7		
4.	11/10 – 13/10/2017	Mbeya	7	98	AMOTC - MBEYA
		Katavi	5		
5.	16/10 – 18/10/2017	Songwe	5	77	AMOTC - MBEYA
		Rukwa	4		
6.	19/10 – 21/10/2017	Ruvuma	8	112	AMOTC - MBEYA
		Njombe	6		
7.	30/10 – 1/11/2017	Shinyanga	6	98	VETA - Shinyanga
		Simiyu	6		
8.	2/11 – 4/11/2017	Tabora	8	126	VETA – Shinyanga
		Kigoma	8		
9.	6 – 8/11/2017	Lindi	6	119	Telecommunication college – DSM
		Mtwara	9		
10.	9 – 11/11/2017	DSM	5	42	Telecommunication college – DSM
11.	13 – 15/11/2017	Iringa	5	42	Mirembe - Dodoma
12.	27/11 – 29/11/2017	Manyara	7	112	Mirembe - Dodoma
		Singida	7		
13.	30/11 – 1/12/2017	Dodoma	8	63	Mirembe - Dodoma
14.	6/12 – 8/12/2017	Mara	9	119	ST. AUGUSTINE - Mwanza
		Geita	6		
15.	11/12 – 13/12/2017	Kagera	8	126	ST. AUGUSTINE Mwanza
		Mwanza	8		

Appendix 2: Development of a dissemination strategy

PROPOSED DISSEMINATION STRATEGY		
ENACTS/User related activities to build awareness, understanding and action based on continuously developing ENACTS products and Services with a focus on national, regional and global levels.		
Global Approach: Use key high-level political moments to highlight importance of ENACTS and related activities to climate sensitive sectors and identify climate as risk and resource to broader development community. Focus on global cross sectoral and sectoral development meetings, for example: UN General Assembly – climate week Sectoral and Multi-Sectoral Initiatives such as the Global Health Security Agenda WMO Global Technical and policy meetings Conference of Parties (COP) – annual	Regional Approach: Use key high-level political moments to highlight importance of ENACTS and related activities to climate sensitive sectors and identify climate as risk and resource to broader development community. Focus on regional climate meetings, for example: GHACOF – 3 times a year AMCOMET – every 2 years ClimDev Africa – annual Sectors e.g. Agriculture and Food Security, the regional GHSA	National Approach: Use country-level ENACTS launch and follow up trainings to drive in-country dissemination through media and word of mouth. Target high-level moments to continue media engagement and identify national champions. Focus on national and subnational meetings.

ICPAC Dissemination Strategy

Date	Opportunity	Thematic Focus	Target Audiences	ENACTS Activities	Partner Activities/ Next Steps
Feb. May Aug.	GHACOF	Seasonal Climate Outlook	·Climate scientists and users	·fliers, presentation, posters, side events, GHACOF bulletin	·WISER 2 (organize trainings, printing of fliers, etc.)
2018-2019	Tailor made trainings (PRECOF, etc.	·Capacity building	·ICPAC staff, MS scientists, interns, researchers, users	·trainings, workshops, staff attachments, internship	·WISER 2, USAID, training institution

	Online platforms and public media	Awareness creation, dissemination	·General public and various orgs.	Updating of ICPAC content web, newsletters to AMCOMET, social media, email lists, public media	·WMO, ICPAC
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NMA Dissemination Strategy

Date	Opportunity	Thematic Focus	Target Audiences	ENACTS Activities	Partner Activities/ Next Steps
Jan May Sep	National COF and RMSC organized COF	Awareness and Understanding of ENACT	Larger Climate Service Users Community, key stakeholders and some decision makers	·Map room demonstration and ENACTS presentation	Data and climatology prepare proposal and submit to NMA Forecast
December 2017	Training workshop to CARE Partner Organization on Climate Information	Both Awareness and Understanding of ENACTS	Multi-sectoral working on humanitarian and disaster emergency group team	·Demonstrating Maproom and practical exercises on its use	With Christian Aid Prepare training material
January 2018	BRACED Stakeholder Workshop	Awareness on ENACTS	Government organization and NGOs	·Power point presentation	With Christian Aid
Regularly	Data request visitors	Awareness on ENACTS	Any Meteorological Users	·Fliers and briefing	Prepare ENACTS fliers
Biannually	NMA news bulletin	Awareness on ENACTS	NMA-New letter users	·Article on ENACTS	Prepare article and book news column
2018	National Framework for Climate Services Consultation workshop	Awareness, understanding and Action	GFCS Pillar groups (Agriculture, Health, Water, Research Institutes, etc.)	·Presentation and demonstration	Prepare presentations and demo

KMD Dissemination Strategy

Date	Opportunity	Thematic Focus	Target Audiences	ENACTS Activities	Partner Activities/ Next Steps
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21 Mar. 2018	WMD	Climate Change	Public Research institutions	Flyers and banners presentations	ENACTS Focal point
Weekly	ICCA	Climate change	Postgraduate students	Presentations demonstration	Institute ENACTS focal point
Quarterly	PSP	Seasonal forecast	Technical sectors	Presentations demonstration	ENACTS focal point CDM County planner
Annually	ASK Show	Climate Information	Public Research institution	Flyers, banners, presentations	Scientists
Daily	Students visits	Weather and climate information	Students	Flyers, banners presentations	Scientists

Metéo Rwanda Dissemination Strategy

Date	Opportunity	Thematic Focus	Target Audiences	ENACTS Activities	Partner Activities/ Next Steps
5-7 Dec 2017	Set up the National framework for Climate Services (NFCS)	<ul style="list-style-type: none"> •National Consultative Workshop 	Policy Makers (Ministers & Officials from Gov.) ·INGOs (UN, NGOs, Development Partners) ·Researchers & academia ·Professionals ·Local Govt./Municipality ·Farmers and Community	Showcase the Rwanda Climate Maprooms and Data library for awareness, understanding and for action ·Success stories	Metéo Rwanda ·CCAFS/CIAT ·Stakeholders ·Farmers
Jan 2018	Workshop of Climate Services Champions (ToTs) on utilization of Rwanda Climate Maprooms	<ul style="list-style-type: none"> ·Understanding and application of Rwanda Climate Maprooms 	Technical staff in central government (e.g. Key Climate Sensitive Sectors= Agriculture, DRR, Health, Water, Energy) ·District staff in charge of Natural resource and agriculture	<ul style="list-style-type: none"> ·Training on use and application of Climate services using Rwanda Climate Maprooms 	Metéo Rwanda CCAFS/CIAT Rwanda Agricultural Board (RAB) ·IRI

Feb 2018	MAM Seasonal Forecast	Seasonal Forecast launch and dissemination	<ul style="list-style-type: none"> ·All Sectors ·Public ·Media ·Farmers 	Trainings Workshops ·Engagement meetings	Metéo Rwanda CCAFS/CIAT RAB
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UNMA Dissemination Strategy

Date	Opportunity	Thematic Focus	Target Audiences	ENACTS Activities	Partner Activities/ Next Steps
Feb.	Downscaling workshop	Seasonal Climate forecast (SCF)	Climate Society: MDAS NGOs Local Gvt., Researchers	Maproom Presentations Flyers posters	SCF Production ACCRA (CARE, Oxfarm, World Vision)
Feb. to Mar.	Roving Seminars	SCF Monthly Dekadal	CBOs Local leaders Technical officers at the lower levels Opinion leaders	Presentations Flyers posters	SCF Production Awareness creation Translation into local languages ACCRA (CARE, Oxfarm)
	Outreach programs	SCF Monthly Dekadal	Schools Places of Worship (churches, mosques) Markets Shows e.g. Agricultural Exhibitions	Presentations Flyers Posters booklets	SCF Production Awareness creation
23 Marc 2018	WMO Day	TBD	Public Media	Showcase Rwanda Climate Maprooms products and its applications in various sectors Success stories	Metéo Rwanda Media Stakeholders Community representatives
May 2018	Workshop for key climate Sensitive sectors	Understanding and application of Rwanda	Technical staff in central government (e.g. Key Climate Sensitive Sectors= Agriculture,	Training on use and application of Climate services using Rwanda	Metéo Rwanda CCAFS/CIAT ·Rwanda Agricultural Board (RAB)

		Climate Maprooms	DRR, Health, Water, Energy.) District staff in charge of Natural resource and agriculture	Climate Maprooms into their sectors	IRI
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Appendix 3: WISER ENACTS Maproom Analytics

Introduction

Our initial approach to monitoring ENACTS Maprooms was established using Google analytics. The ENACTS countries were approached and agreed to have the appropriate set up that enabled our routine monitoring of their servers. However, when exploring the results of Google analytics, significant issues were observed. As a consequence, the analytics presented here are pulled directly from the log files of the Data Library servers using AWStats, an open source log analyzer. Due to networking vagaries, location data is not always entirely accurate. We saw this specifically on the ICPAC Data library.

We use the log files for analytics because Google Analytics can't show bandwidth and isn't always successful in communication with the Data Libraries. Some of the Data Libraries are internal or behind firewalls and can't communicate reliably with Google.

However, we found an issue with the geolocation data in the log files. The geolocation data shows where the users are located. Some of the data was not being represented faithfully so we've replaced the geolocation log data with the Google Analytics log data in the ICPAC results.

A brief summary of AWStats results for the regional Maproom at ICPAC and the country ENACTS Maprooms are provided below.

1. ICPAC Overview

1.1 Are the Maprooms being used?

Month	Unique visitors	Number of visits	Pages	Hits	Bandwidth
Jan 2017	69	136	16,059	20,676	301.86 MB
Feb 2017	42	95	12,735	15,792	219.17 MB
Mar 2017	139	245	22,625	43,136	564.80 MB
Apr 2017	56	128	29,667	32,227	508.37 MB
May 2017	47	122	32,733	35,008	544.37 MB
Jun 2017	68	160	31,593	35,746	560.96 MB
Jul 2017	76	162	31,975	37,257	541.52 MB
Aug 2017	78	189	36,672	41,336	643.36 MB
Sep 2017	93	193	37,388	41,615	641.44 MB
Oct 2017	100	253	56,451	59,617	941.02 MB
Nov 2017	80	227	47,573	52,549	823.58 MB
Dec 2017	92	311	47,533	52,190	822.31 MB
Total	940	2,221	403,004	467,149	6.95 GB

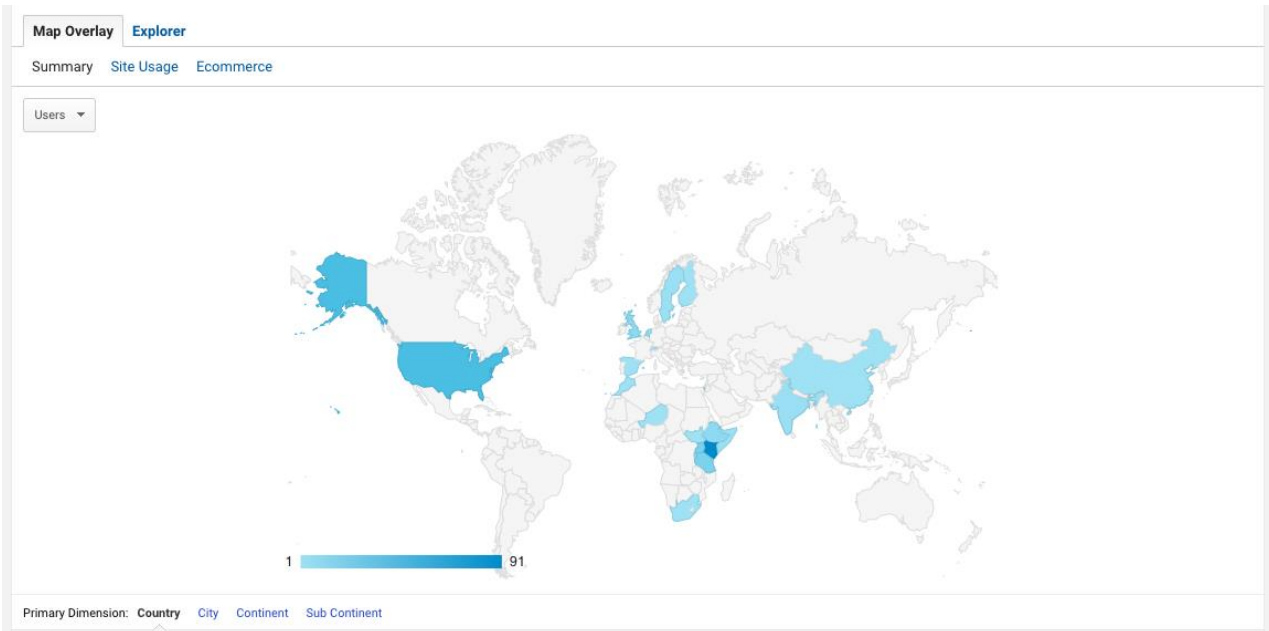
Note: The bandwidth is relatively low because all that is being accessed are images and text. This means that high quality information can be delivered over low bandwidth internet.

With an average of over 33,000 “interactions” per month, from an average of over 78 users per month, we get about 420 interactions per user per month.

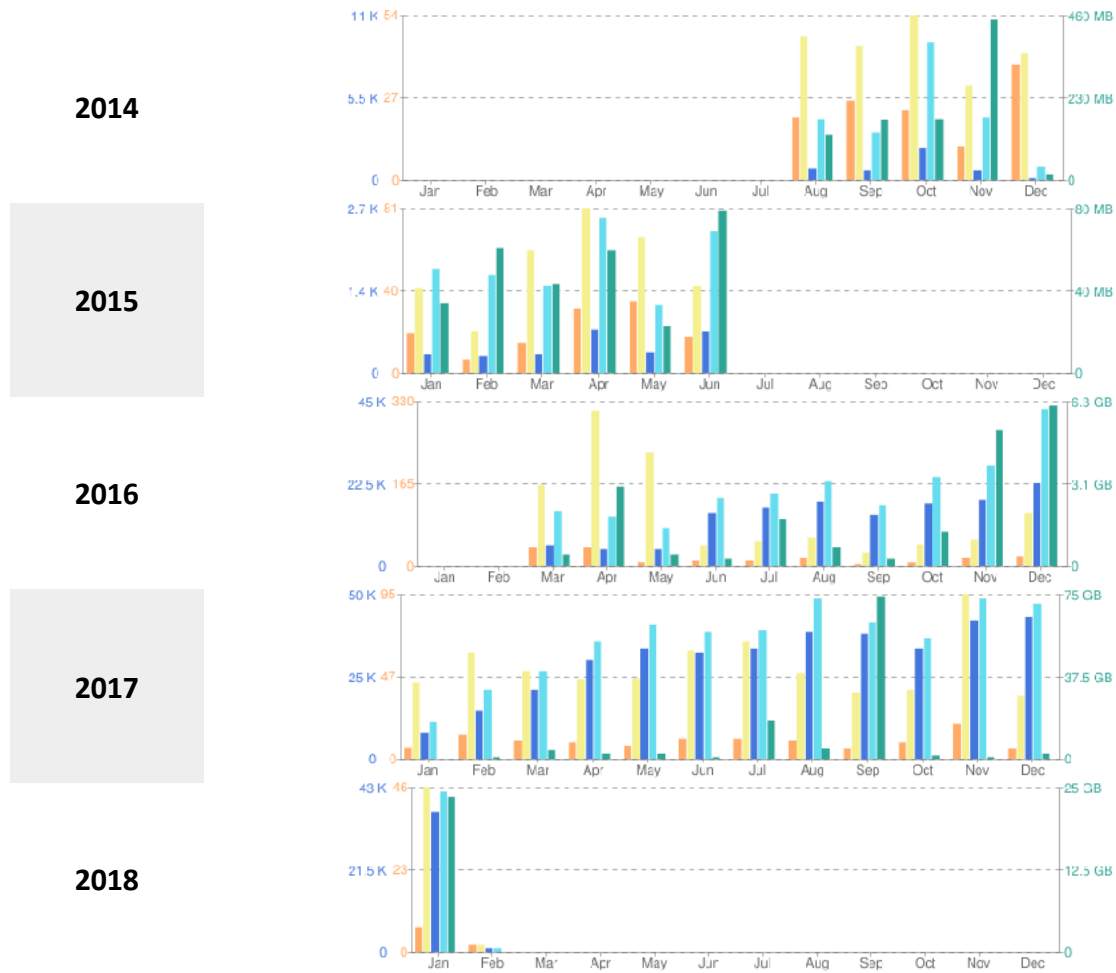
1.2 Where are the users from?

Not available from ICPAC server using AWStats

Google analytics suggests Maproom access is widespread.



1.3 What trends in maproom usage are observed?

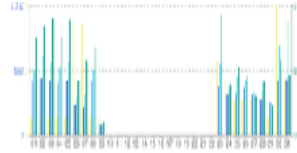


Note: from the graphs you can see there is an increasing trend in maproom usage over time

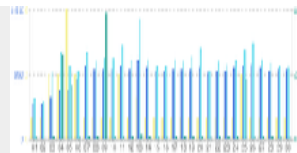
1.4 What downtime can be observed in in daily usage graphs?

2017

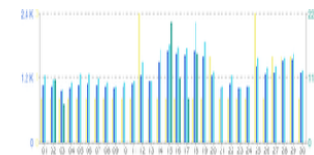
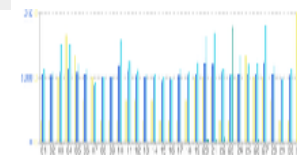
Jan
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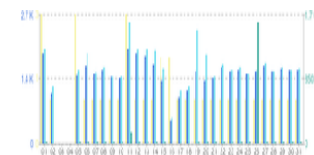
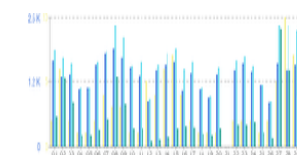
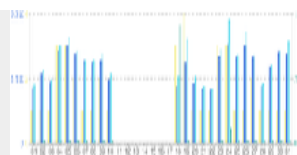
Apr
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Note: You can see from the Usage Graphs, there is very little downtime and consistent usage patterns over the year.

2 Ethiopia Overview

2.1 Are the Maprooms being used?

Month	Unique visitors	Number of visits	Pages	Hits	Bandwidth
Jan 2017	324	663	65,052	82,272	829.33 MB
Feb 2017	317	635	47,034	71,530	888.22 MB
Mar 2017	455	882	61,587	87,058	1006.40 MB
Apr 2017	161	348	30,793	36,202	370.53 MB
May 2017	263	616	74,492	87,757	819.57 MB
Jun 2017	188	480	52,964	63,110	665.63 MB
Jul 2017	118	328	33,269	36,986	270.94 MB
Aug 2017	106	261	20,791	23,659	214.68 MB
Sep 2017	58	152	10,303	12,275	151.07 MB
Oct 2017	58	151	8,941	10,948	109.16 MB
Nov 2017	226	516	48,779	61,104	636.69 MB
Dec 2017	257	585	69,444	77,686	711.72 MB
Total	2,531	5,617	523,449	650,587	6.52 GB

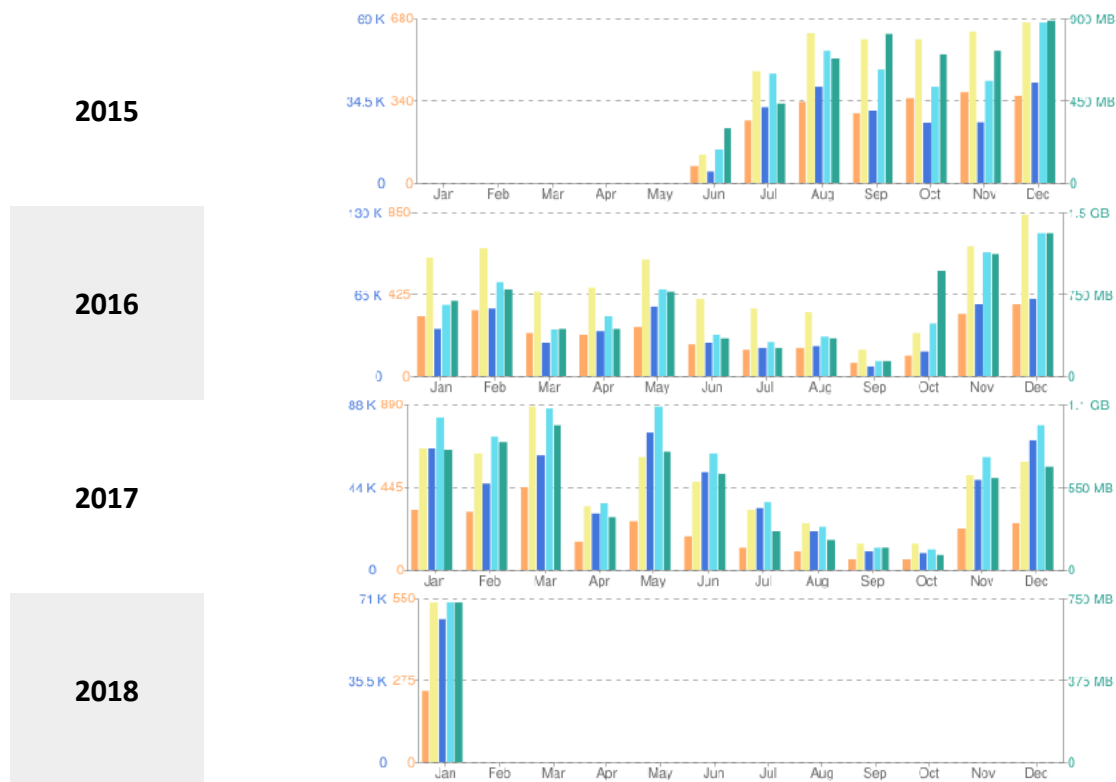
Note: The bandwidth is relatively low because all that is being accessed are images and text. This means that high quality information can be delivered over low bandwidth internet.

With an average of over 43,000 “interactions” per month, from an average of over 210 users per month, we get about 200 interactions per user per month.

2.2 Where are the users from (2017) ?

Countries		Unique visitors	Number of visits	Pages	Hits	Bandwidth
United States	us	63 (24.5%)	144 (24.6%)	17,320	18,882	245.74 MB
Mali	ml	32 (12.5%)	73 (12.5%)	9,099	9,099	13.70 MB
Niger	ne	29 (11.3%)	65 (11.1%)	8,132	8,147	98.83 MB
Senegal	sn	22 (8.6%)	51 (8.7%)	6,340	6,340	82.58 MB
Zambia	zm	17 (6.6%)	38 (6.5%)	4,732	4,732	7.12 MB
Kenya	ke	16 (6.2%)	37 (6.3%)	4,590	4,590	6.91 MB
Madagascar	mg	15 (5.8%)	33 (5.6%)	4,181	4,181	6.30 MB
Uganda	ug	14 (5.4%)	33 (5.6%)	4,077	4,077	6.14 MB
Ghana	gh	13 (5.1%)	30 (5.1%)	3,783	3,783	55.25 MB
Malawi	mw	12 (4.7%)	26 (4.4%)	3,316	3,316	4.99 MB
Ethiopia	et	14 (5.4%)	33 (5.6%)	2,808	5,509	69.65 MB

2.3 What trends in maproom usage are observed?

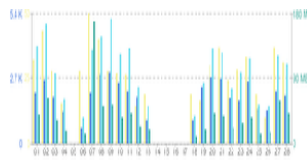
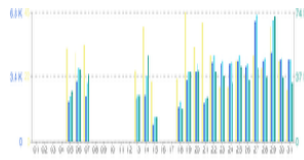


	Unique Visitors	Number of Visits	Pages	Hits	Bandwidth
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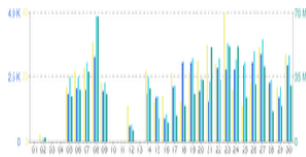
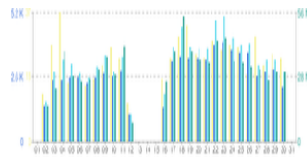
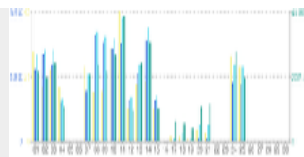
2.4 What downtime can be observed in in daily usage graphs?

2017

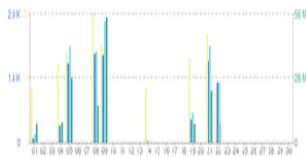
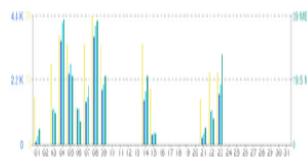
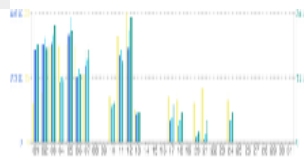
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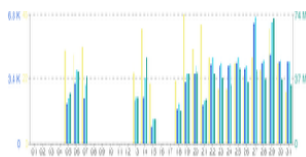
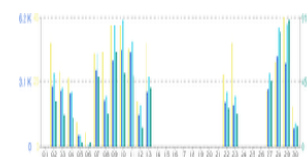
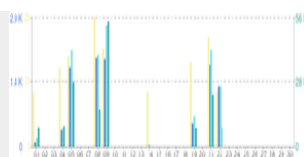
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You can see from the Usage graphs, there is a significant amount of down time, where the user interaction dropped to 0, which results in a very inconsistent usage pattern.

3 Kenya (KMD) Overview

3.1 Are the Maprooms being used?

Month	Unique visitors	Number of visits	Pages	Hits	Bandwidth
Jan 2017	69	136	16,059	20,676	301.86 MB
Feb 2017	42	95	12,735	15,792	219.17 MB
Mar 2017	139	245	22,625	43,136	564.80 MB
Apr 2017	56	128	29,667	32,227	508.37 MB
May 2017	47	122	32,733	35,008	544.37 MB
Jun 2017	68	160	31,593	35,746	560.96 MB
Jul 2017	76	162	31,975	37,257	541.52 MB
Aug 2017	78	189	36,672	41,336	643.36 MB
Sep 2017	93	193	37,388	41,615	641.44 MB
Oct 2017	100	253	56,451	59,617	941.02 MB
Nov 2017	80	227	47,573	52,549	823.58 MB
Dec 2017	92	311	47,533	52,190	822.31 MB
Total	940	2,221	403,004	467,149	6.95 GB

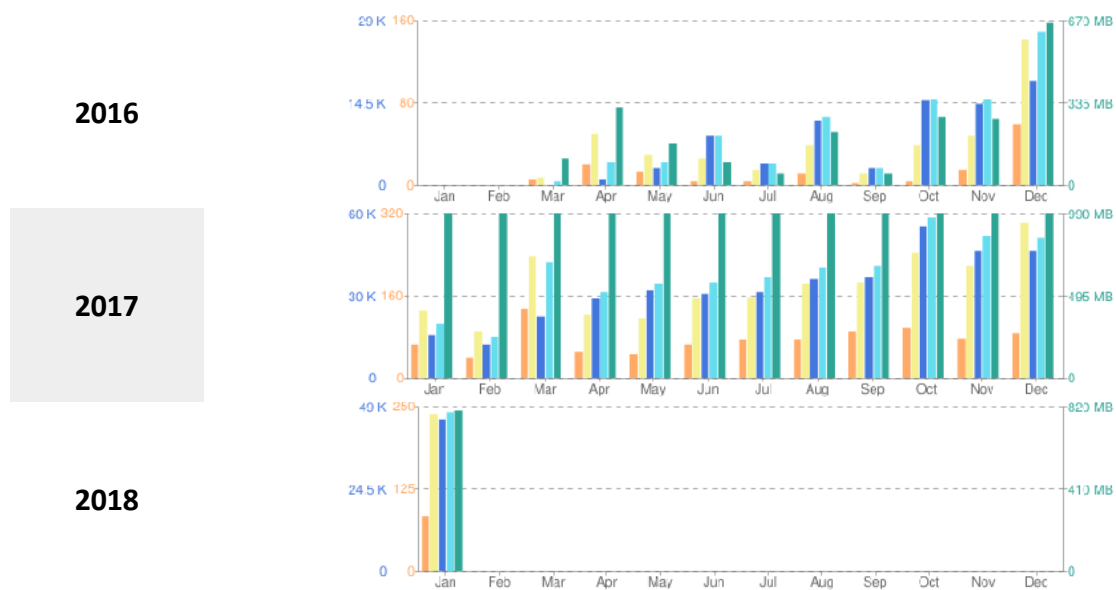
Note: The bandwidth is relatively low because all that is being accessed are images and text. This means that high quality information can be delivered over low bandwidth internet.

With an average of over 34,000 “interactions” per month, from an average of over 78 users per month, we get about 435 interactions per user per month.

3.2 Where are the users from (2017)?

Countries		Unique visitors	Number of visits	Pages	Hits	Bandwidth
United States	us	711 (75.6%)	1,680 (75.6%)	320,066	335,824	5.06 GB
Senegal	sn	74 (7.9%)	176 (7.9%)	34,269	34,269	543.20 MB
Niger	ne	73 (7.8%)	173 (7.8%)	33,668	33,699	524.38 MB
Kenya	ke	62 (6.6%)	145 (6.5%)	11,317	48,077	588.52 MB
Great Britain	gb	5 (0.5%)	12 (0.5%)	929	3,804	56.35 MB
Tanzania	tz	2 (0.2%)	5 (0.2%)	428	1,607	24.53 MB
European country	eu	2 (0.2%)	6 (0.3%)	405	1,992	38.66 MB
Italy	it	1 (0.1%)	3 (0.1%)	287	867	11.96 MB
Unknown	unknown	1 (0.1%)	3 (0.1%)	189	1,046	9.47 MB
South Africa	za	1 (0.1%)	3 (0.1%)	180	934	21.61 MB
China	cn	1 (0.1%)	1 (0.0%)	163	395	6.55 MB

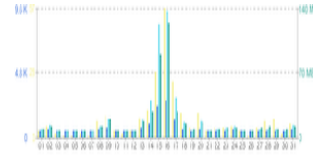
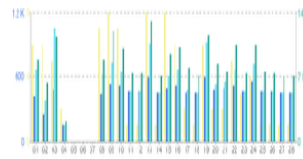
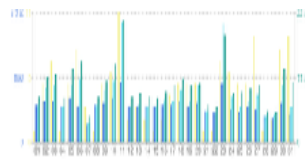
3.3 What trends in maproom usage are observed?



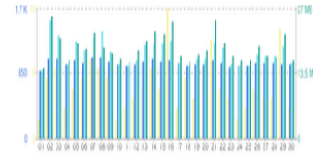
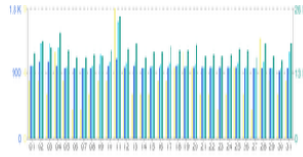
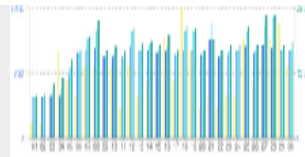
3.4 What downtime can be observed in in daily usage graphs?

2017

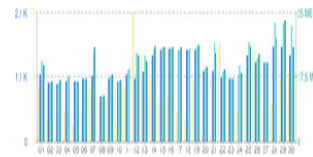
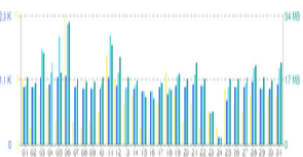
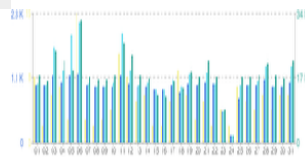
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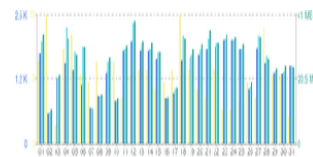
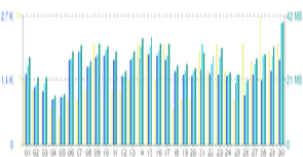
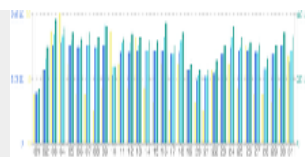
Apr
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Oct
Nov
Dec



We can see from the Usage graphs there is almost no downtime and it appears there is an upward trend in page views, while a consistent user base.

4 Rwanda Overview

Note: Due to a server replacement, log files between November 2017 and January 2018 have yet to be recovered from the old server.

4.1 Are the Maprooms being used?

Month	Unique visitors	Number of visits	Pages	Hits	Bandwidth
Sep 2017	296	579	46,670	54,993	1.49 GB
Oct 2017	724	1,490	120,339	142,844	2.66 GB
Nov 2017	290	574	50,991	58,116	777.08 MB
Dec 2017	0	0	0	0	0
Jan 2018	308	585	57,061	66,411	2.47 GB
Total	1,618	3,228	275,061	322,364	7.39 GB

Note: The bandwidth is relatively low because all that is being accessed are images and text. This means that high quality information can be delivered over low bandwidth internet.

With so much data missing it is difficult to interpret.

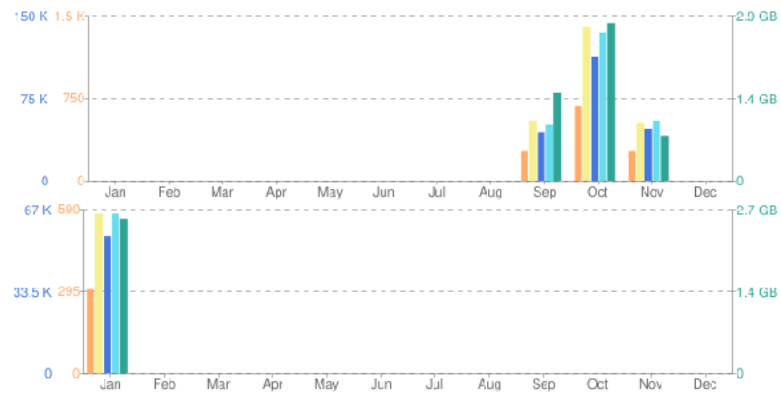
4.2 Where are the users from (2017) ?

Countries		Unique visitors	Number of visits	Pages	Hits	Bandwidth
United States	us	390 (29.8%)	787 (29.8%)	63,563	77,835	1.46 GB
Mali	ml	171 (13.1%)	344 (13.0%)	30,664	30,664	41.19 MB
Zambia	zm	125 (9.5%)	253 (9.6%)	22,521	22,521	30.27 MB
Senegal	sn	103 (7.9%)	209 (7.9%)	18,543	18,651	238.09 MB
Madagascar	mg	99 (7.6%)	199 (7.5%)	17,721	17,734	24.01 MB
Kenya	ke	79 (6.0%)	159 (6.0%)	13,900	14,525	54.52 MB
Uganda	ug	71 (5.4%)	144 (5.4%)	12,664	12,995	55.73 MB
Malawi	mw	66 (5.0%)	133 (5.0%)	11,581	12,162	37.85 MB
Ghana	gh	54 (4.1%)	109 (4.1%)	9,702	9,702	13.02 MB
Niger	ne	39 (3.0%)	79 (3.0%)	7,002	7,002	941.04 KB
Rwanda	rw	47 (3.6%)	94 (3.6%)	3,869	13,698	700.51 MB

4.3 What trends in maproom usage are observed?

2017

2018



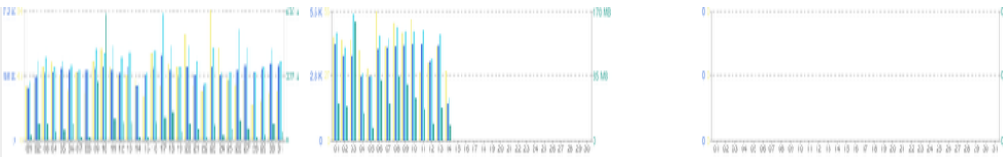
4.4 What downtime can be observed in in daily usage graphs?

2017

Jul
Aug
Sep

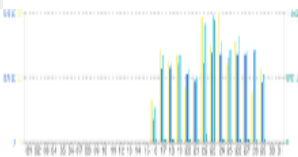


Oct
Nov
Dec



2018

Jan



5 Tanzania Overview

5.1 Are the maprooms being used?

Month	Unique visitors	Number of visits	Pages	Hits	Bandwidth
Sep 2017	229	320	20,883	28,556	445.75 MB
Oct 2017	651	1,186	82,902	103,131	1.43 GB
Nov 2017	980	1,722	112,511	151,147	2.26 GB
Dec 2017	1,226	1,913	108,760	133,729	2.05 GB
Jan 2018	721	1,168	68,684	76,103	1.13 GB
Total	3,807	6,309	393,740	492,666	7.32 GB

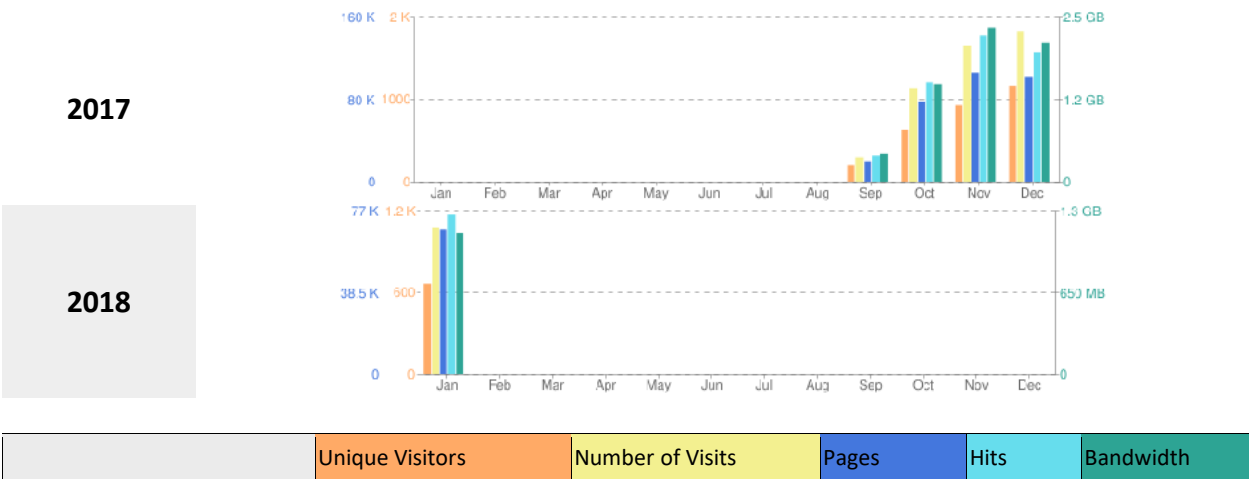
Note: The bandwidth is relatively low because all that is being accessed are images and text. This means that high quality information can be delivered over low bandwidth internet.

Daily bandwidth usage, with the exception of a few spikes is consistent at about 60-70 MB per day.

5.2 Where are the users from (2017)?

Countries		Unique visitors	Number of visits	Pages	Hits	Bandwidth
United States	us	786 (25.5%)	1,310 (25.5%)	88,058	99,369	1.22 GB
Mali	ml	376 (12.2%)	626 (12.2%)	44,472	44,472	761.46 MB
Zambia	zm	256 (8.3%)	427 (8.3%)	30,329	30,329	283.80 MB
Senegal	sn	225 (7.3%)	374 (7.3%)	26,599	26,602	336.39 MB
Tanzania	tz	401 (13.0%)	668 (13.0%)	23,637	77,926	1.64 GB
Ghana	gh	169 (5.5%)	281 (5.5%)	19,959	19,959	252.22 MB
Kenya	ke	170 (5.5%)	283 (5.5%)	19,953	20,365	261.55 MB
Madagascar	mg	162 (5.2%)	270 (5.3%)	19,155	19,171	239.88 MB
Uganda	ug	157 (5.1%)	262 (5.1%)	18,497	18,739	171.54 MB
Malawi	mw	114 (3.7%)	190 (3.7%)	13,508	13,508	130.57 MB
Niger	ne	97 (3.1%)	162 (3.2%)	11,510	11,533	61.18 MB
Switzerland	ch	36 (1.2%)	60 (1.2%)	1,987	7,180	115.77 MB
European country	eu	36 (1.2%)	59 (1.1%)	1,554	7,624	214.46 MB
Unknown	unknown	26 (0.8%)	43 (0.8%)	1,324	5,306	110.74 MB
China	cn	7 (0.2%)	12 (0.2%)	697	1,064	18.58 MB

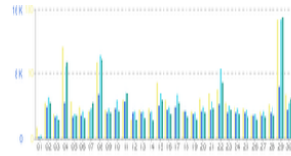
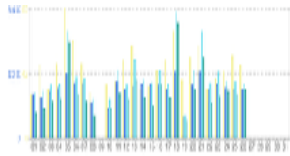
5.3 What trends in maproom usage are being observed?



5.4 What downtime can be observed in daily usage graphs?

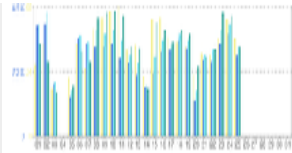
2017

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Nov
Dec



2018

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With a small sample, it's difficult to recognize trends, but the usage is consistent with the other Data Libraries, and uptime does not appear to be a problem.

6 Uganda Overview

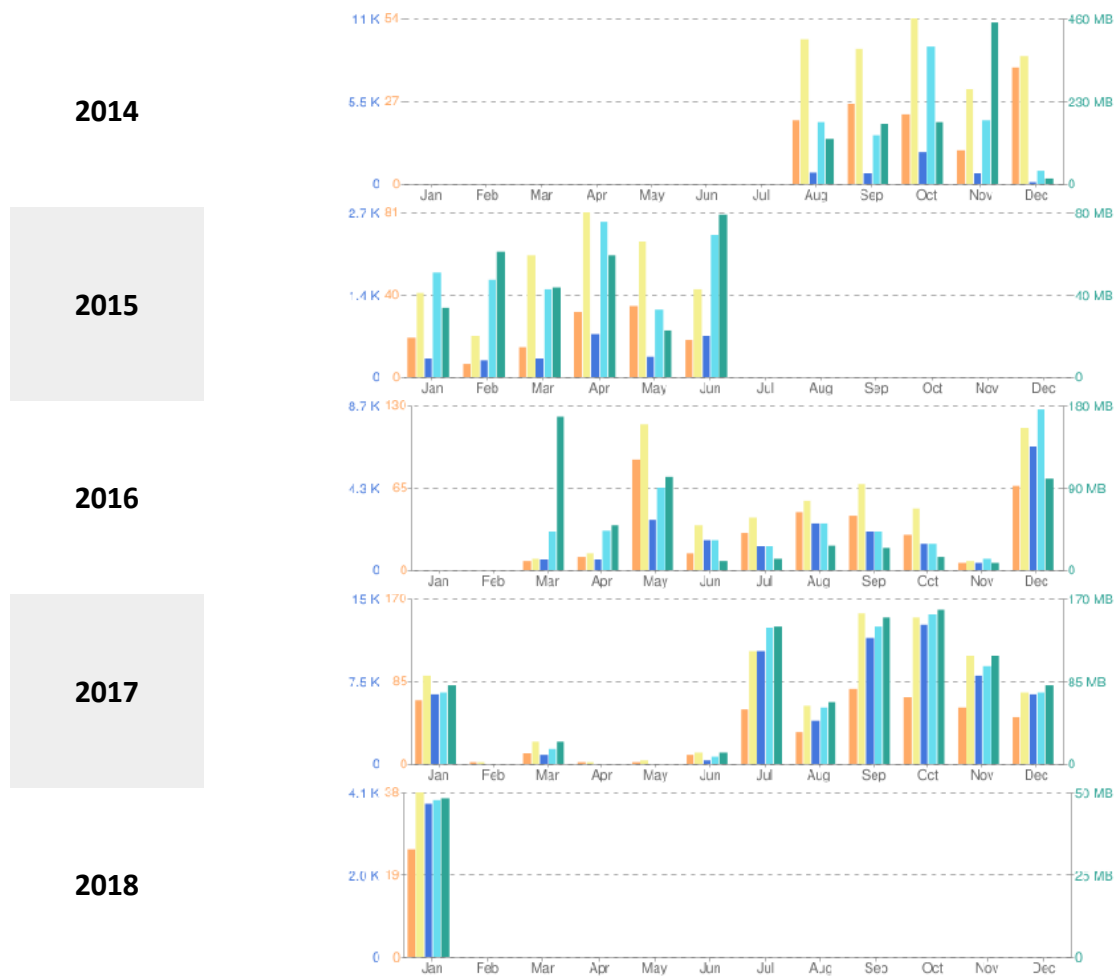
6.1 Are the maprooms being used?

Month	Unique visitors	Number of visits	Pages	Hits	Bandwidth
Jan 2017	69	97	6,736	6,918	81.19 MB
Feb 2017	2	2	3	3	4.67 KB
Mar 2017	11	24	850	1,455	23.80 MB
Apr 2017	2	3	20	55	104.45 KB
May 2017	3	4	7	7	11.12 KB
Jun 2017	9	13	427	722	12.40 MB
Jul 2017	60	123	11,029	13,126	143.27 MB
Aug 2017	35	64	4,221	5,503	64.43 MB
Sep 2017	81	165	12,168	13,347	151.89 MB
Oct 2017	72	159	13,580	14,537	160.21 MB
Nov 2017	62	118	8,632	9,495	113.14 MB
Dec 2017	52	79	6,723	6,903	81.04 MB
Total	458	851	64,396	72,071	831.49 MB

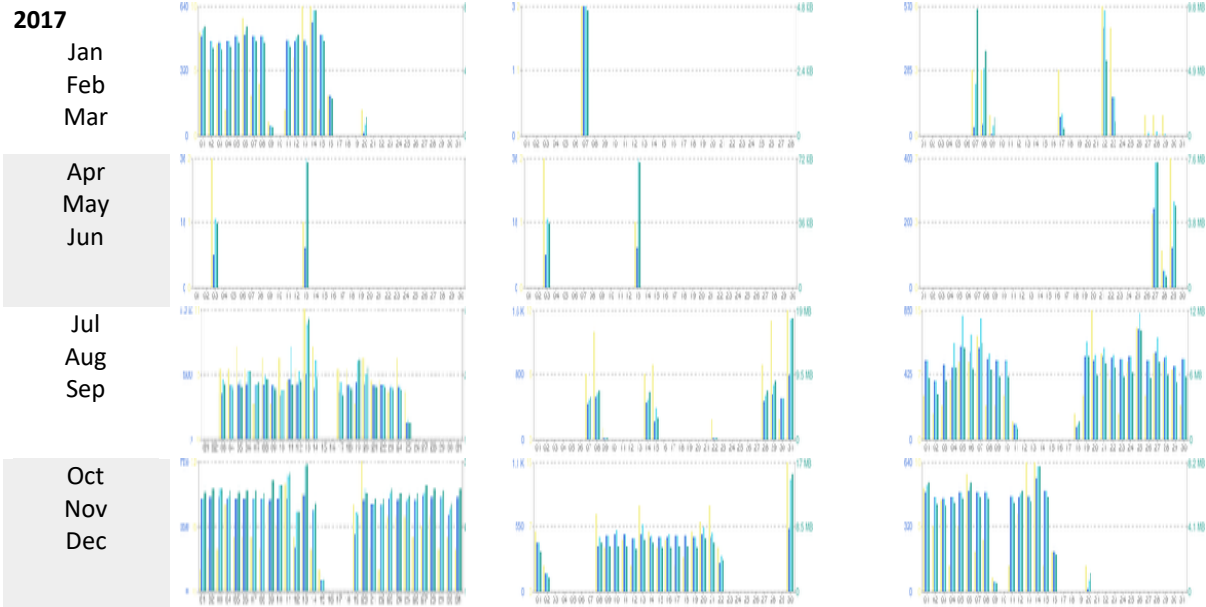
6.2 Where are the users from (2017)?

Countries		Unique visitors	Number of visits	Pages	Hits	Bandwidth
United States	us	420 (91.7%)	781 (91.8%)	62,018	62,897	707.86 MB
Unknown	unknown	33 (7.2%)	62 (7.3%)	1,901	8,373	107.63 MB
China	cn	1 (0.2%)	1 (0.1%)	102	102	1.49 MB
Colombia	co	1 (0.2%)	2 (0.2%)	66	238	5.23 MB
Japan	jp	0 (0.0%)	1 (0.1%)	51	51	914.04 KB
Brazil	br	0 (0.0%)	1 (0.1%)	47	47	721.10 KB
Kenya	ke	1 (0.2%)	1 (0.1%)	31	137	3.72 MB
Uganda	ug	0 (0.0%)	0 (0.0%)	26	26	40.55 KB
France	fr	0 (0.0%)	0 (0.0%)	21	35	1.05 MB
Hong Kong	hk	0 (0.0%)	0 (0.0%)	18	18	314.76 KB
Argentina	ar	0 (0.0%)	0 (0.0%)	13	13	102.95 KB

6.3 What trends in maproom usage are being observed?



6.4 What downtime can be observed in daily usage graphs?



What downtime can be observed in daily usage graphs? show significant downtime over the course of the year 2017 making analysis hard to determine, since there are no real obvious trends in usage.

For 2017, it looks like it's not used much outside the US.