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Welcome!

With support from the American Association of Orthodontists Foundation (AAOF), nine of the eleven known collections of longitudinal craniofacial growth records in the United States and Canada have joined together to create this web site and its underlying numerical database. Our purpose is to make representative materials from the participating collections available for viewing and further investigation by clinicians, craniofacial investigators, students of human growth, and interested members of the public.

These collections represent the work of hundreds of investigators. They have been gathered, cataloged, and studied over a period of more than seventy-five years. The materials they contain are literally irreplaceable. Each of the collections is independent from the others and has pursued its own sampling and data collection strategies. Taken together, these different and complementary strategies have produced a rich longitudinal record of craniofacial development among children who did not receive orthodontic treatment. Available documentation of the growth process in the several collections includes skull x-ray images of various sorts, hand-wrist films, dental radiographs, facial photographs, and study casts as well as written records on the physical and educational development of children of varied ethnicities and growth patterns.

The contributing collections, working individually, have produced most of the information that is available in the contemporary orthodontic literature on longitudinal craniofacial growth in untreated children. Now, by merging data from the several collections, we hope to make possible further collaborative studies that will enrich and refine our knowledge of craniofacial growth in untreated children and adolescents.

During the initial phase of this project, which is now nearing completion, we have confined ourselves primarily to the collection of lateral and frontal cephalograms. Presently available on the site are more than 13,000 digital images including 8700 lateral cephalograms and over 3000 frontal (PA) cephalograms generated at different ages from 696 cases, gathered from 9 different Collections. Summary statistics on case distribution by sex/gender, age and Angle Class may be found by clicking on " Statistics" in the About menu.

This entire site is a continually developing resource for orthodontic teaching and research. Its primary role is to serve as a repository for longitudinal records of all types with sufficient numerical documentation to facilitate useful search and querying.

Getting Started

Clicking on a Collection Name in the Collections menu takes you to a page with three tabs, where you can see a description of the Collection, a detailed Inventory, and a condensed Inventory. This is the place to start if you want to browse through the images. The items on the Help menu provide more information on browsing and selecting images for your own research project.

The choices on the Search menu allow you to search for Subjects by Collection, Age, Sex, and Angle Class. You can also select from a subset of Subjects by Cephalometric measurements and Changes in Measurements.

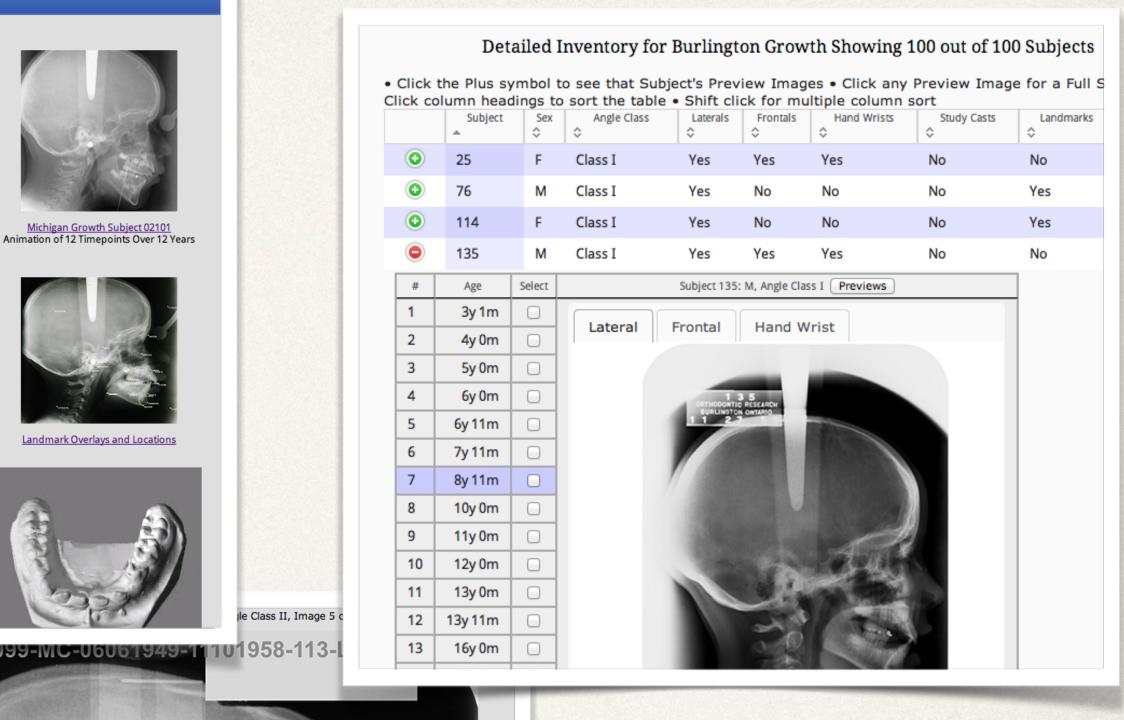
Use of Materials from This Site

In creating and sustaining this site, AAOF and the participating collections seek to make possible the widest use of its unique materials in education and research. To that end, the entire content of the site is made available without cost for on-line use and downloading by all members of the orthodontic community. Other investigators and members of the public may also request permission to download site materials contingent upon agreement by the collection that was the

AAOF Craniofacial Growth Legacy Collection 2014 Status Report

Sean Curry, November, 2014





AAOF Legacy Collection Status Report

- Collection Status
- Website Infrastructure
- Usage Statistics
- Image Requests
- Q and A

Legacy Collection Status

- Collection is now in maintenance mode
- All available images have been processed and loaded to the website and database
- Website and database are stable, and software being updated as new versions become available
- Requests are being filled
- Some image renaming in progress, as resources allow

Legacy Collection Image Counts

	Nov 2011	Nov 2012	Nov 2013	Nov 2014
Collections	9	9	9	9
Subjects	194	566	696	752
Lateral Cephs	2000	6200	8700	10200
Frontal Cephs			3200	5800
Total Images	2500	8900	12500	16000

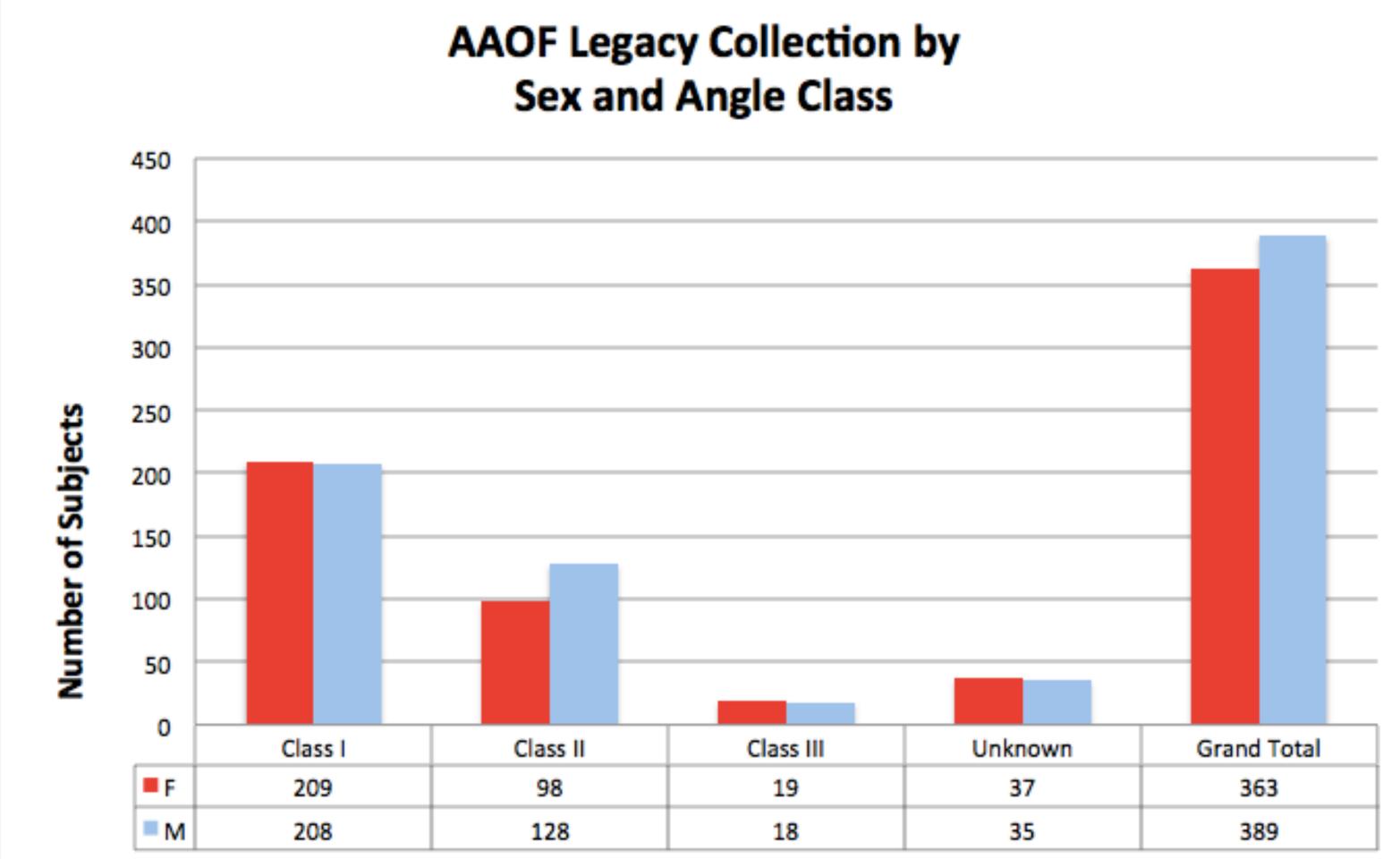
Subjects Per Collection

Collection

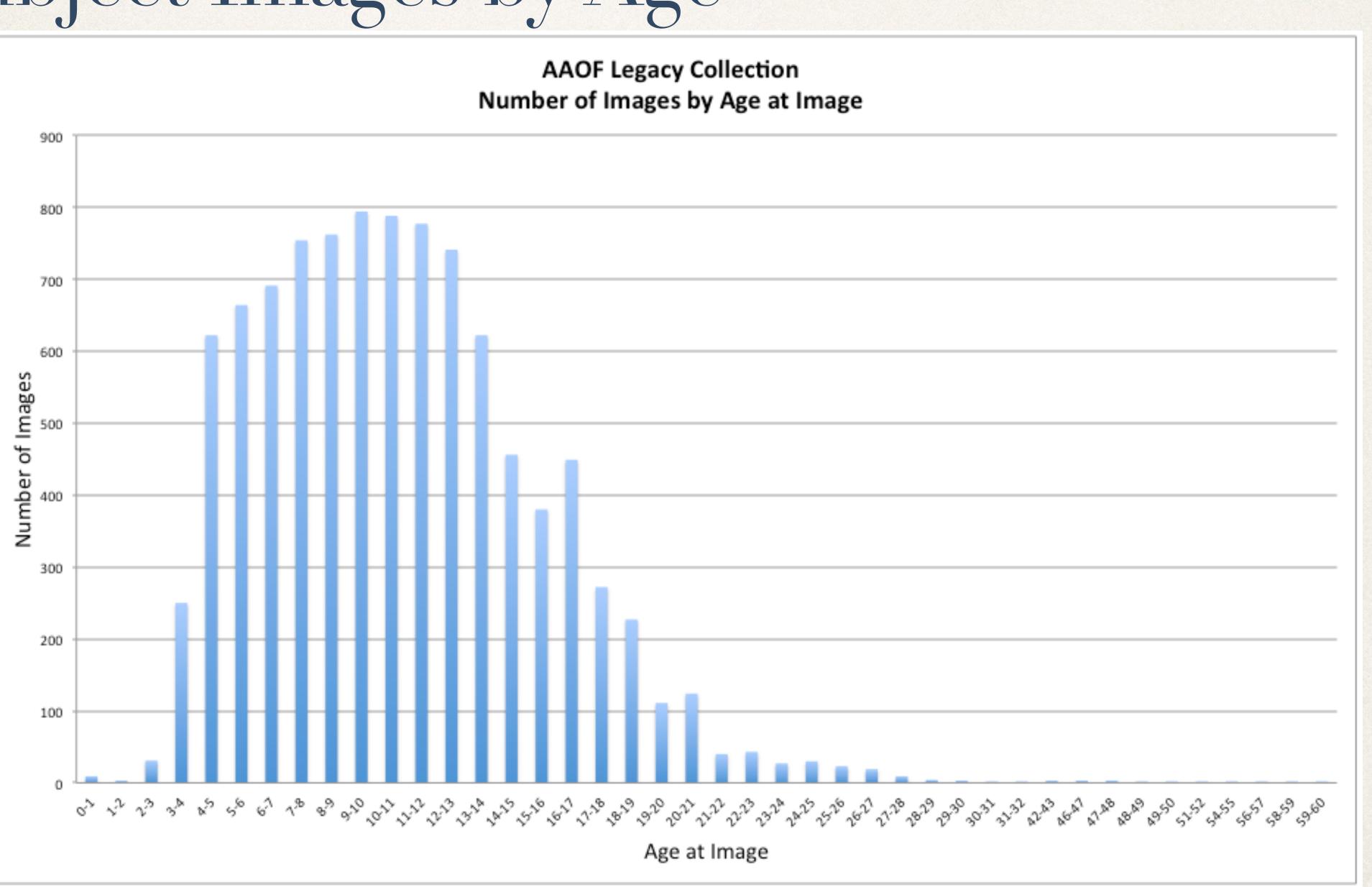
Bolton-Brush Growth Burlington Growth Denver Growth Fels Longitudinal Forsyth Twin Iowa Growth Mathews Growth Michigan Growth Oregon Growth

Subjects	
102	
100	
94	
102	
10	
100	
35	
102	
107	

Subject Distribution



Subject Images by Age



Website Infrastructure

- Website and database are hosted on Amazon AWS EC2
- Has been extremely reliable and fast
- PostgreSQL Database
- Node.js Web Server
- Various Javascript libraries for web pages
- All components are updated as new software versions become available
- Heartbleed and bash security patches applied immediately

Ongoing Routine Maintenance Tasks

- Website monitoring I get automated emails and text messages if site is unavailable
- Current site has been up for over a year, down only briefly for a software upgrade
- Capacity and usage analysis
- Statistics
- Miscellaneous bug fixes
- Request logging
- Website and database backups

Backup Strategy

- For data security, 3 backups are needed
 - Local
 - Offsite
 - Different media
- Local backup is on Amazon AWS
- Offsite backup on a USB hard drive stored in Portland, OR
- Third backup on a different drive in a safety deposit box

Fiducial Document

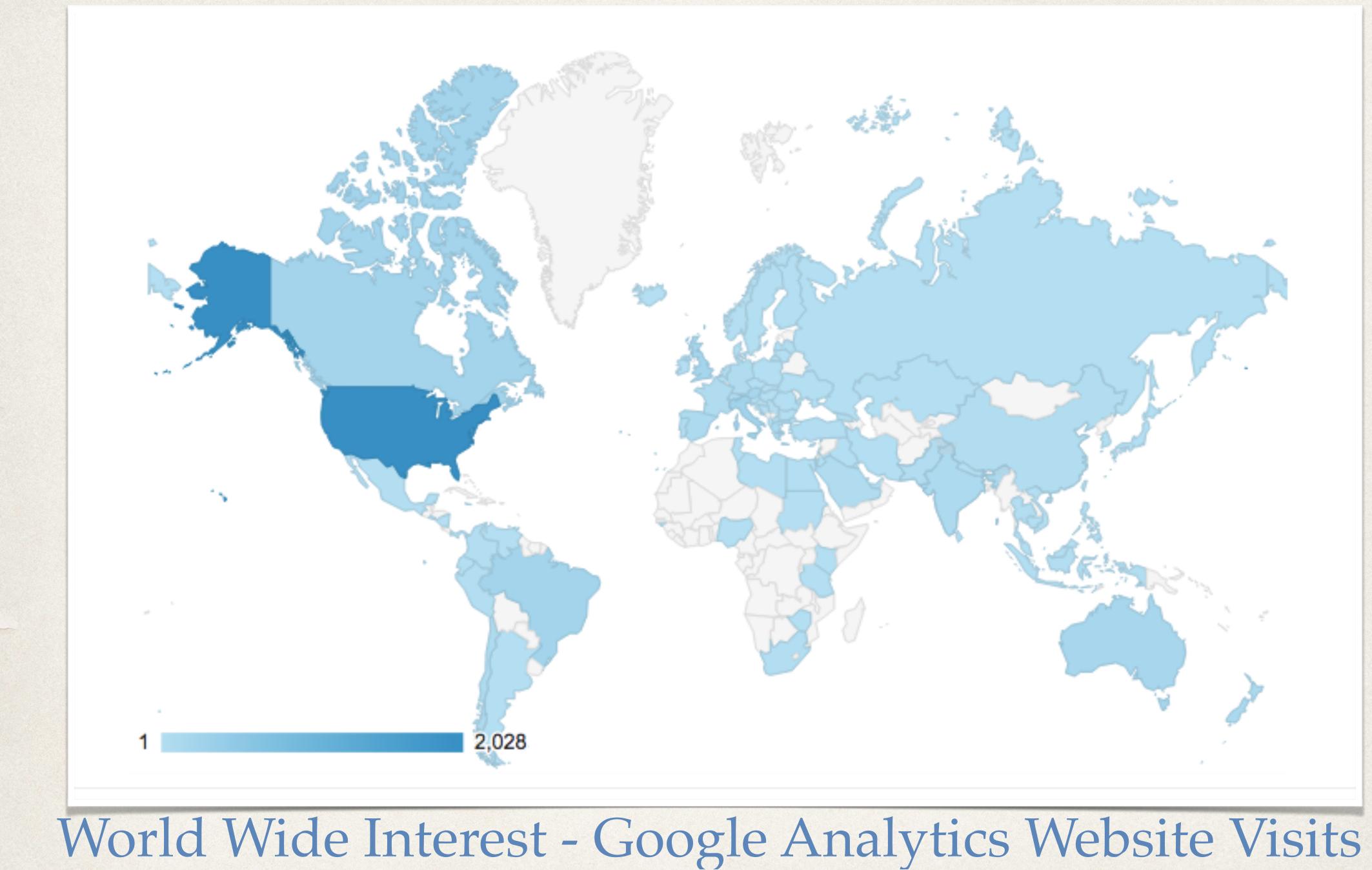
Scaled Measurements from the AAOF Legacy Collection Images



AAOF Legacy Collection

Website Usage 2014

- Results from Google Analytics for Nov 2013 Nov 2014
- Approximately 26,000 Pageviews
 - Up from last year, which totaled approximately 20,000 page views
- 2200 Users, 4600 Sessions
- Most visited Collections:
 - Bolton-Brush Growth
 - Burlington Growth
 - Denver Growth



1.		United States
2.		Italy
3.	*	Canada
4.		Brazil
5.		United Kingdom
6.	H .,	Australia
7.		Austria
8.		New Zealand
9.	÷	Greece
10.		India

Sessions From Top 10 Countries

2,028 (44.52%)
265	(5.82%)
250	(5.49%)
243	(5.33%)
194	(4.26%)
188	(4.13%)
170	(3.73%)
122	(2.68%)
108	(2.37%)
103	(2.26%)



How do Users Find the Website?

Source ?		Acquisition	
		Sessions	· · ·
		% of Total:	970 21.30% (4,555)
1.	aaofoundation.net	366	(37.73%)
2.	semalt.semalt.com	105 ((10.82%)
3.	ohsu-hca.blogspot.com	82	(8.45%)
4.	orthodonticproductsonline.com	70	(7.22%)
5.	dental.case.edu	49	(5.05%)
6.	dentistry.utoronto.ca	48	(4.95%)
7.	facebook.com	23	(2.37%)
8.	10.22.2.1:4990	21	(2.16%)
9.	orthocorner.blogspot.in	12	(1.24%)
10.	orthocorner.blogspot.com	11	(1.13%)

Referrals from Websites

Keyword ?		Acquisition		
		Sessions	a (?) ↓	
		% of Tota	1,806 : 39.65% (4,555)	
1.	(not provided)	1,603	(88.76%)	
2.	aaof legacy collection	32	(1.77%)	
3.	aaof	29	(1.61%)	
4.	aaof legacy	27	(1.50%)	
5.	aaofcollection	17	(0.94%)	
6.	aaof legacycolection	14	(0.78%)	
7.	aaof collection	12	(0.66%)	
8.	aaoflegacycollection	7	(0.39%)	
9.	growth centre for craniofacial growth	4	(0.22%)	
10.	aa of craniofacial growth legacy collection	3	(0.17%)	

Search Terms

Image Requests - 2014 Status

- Approximately 24 Image Requests Nov 2013 Oct 2014, compared to 9 in 2013
- Approximately 6135 images supplied, vs 1080 images in 2013
- As in 2013, many international requests
- Publications beginning to appear
- A wide variety of research projects

Sample Image Requests

- I am an orthodontic resident at Eastman/University of Rochester and I'm working in my research project about mandibular growth modification with the Forsus appliance in patients with different growth patterns and I would like to use the Bolton sample as a control group (untreated patients). We are doing a research about the reliability of the CVM method using images of your collections and we would be grateful if you could send us higher resolution versions of our selected images in order to perfom clear cephalometric measurements
- My name is Adam Leung and I am a post-graduate orthodontic student at the University of Adelaide. I am conducting a growth study using lateral cephalograms from the Denver collection. Professor Wayne Sampson has contacted Dr Baumrind and informed him of our intention to use the legacy collection for research purposes. We will be sure to credit the appropriate collection as requested.



Sample Image Requests

- I am currently undertaking a research project here at the University of Adelaide and am studying soft tissue nasal profiles specifically.
- We are doing a research about the reliability of the CVM method using images of your collections and we would be grateful if you could send us higher resolution versions of our selected images in order to perfom clear cephalometric measurements
- I'm taking a Masters degree in Orthodontics in the Bauru Dental School, University of Sao Paulo. I'm writing a thesis about the stability of Class III malocclusion treatment and in order to differentiate changes related to relapse from those arising in the normal growth, assessing thus the influence of growth on stability of treatment, I need a control sample of 30 patients with normal occlusion and average initial age and gender-matched to my experimental group. Unfortunately, I couldn't find such sample on the university files, which is why I am kindly requesting the images above related.



Summary

- All current images have been loaded to the website and database
- The AAOF Legacy Collection Website and database are stable
- Image requests have increased over the last year
- As always, thanks to the AAOF and the Curators for enabling me to work on this project - it continues to be very interesting and challenging!

Questions?

