

ecoSports.com: Using ArcIMS to Promote a Sports Mecca
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Abstract:

When people think of Vail they think of snow...until now.

ecoSports.com is a unique on-line resource of free trail maps for different summer sports like mountain biking, hiking and paddling. The website is a partnership between Eagle County Government, Vail Resorts and local sports marketing groups in the Vail Valley. The aim of the website is to show locals and visitors where to find the best trails in Vail and the rest of Eagle County.

This paper will describe the development of ecoSports.com. The website, launched in the summer of 2004, uses a combination of ArcIMS, Flash, HTML and ColdFusion to serve up interactive trail maps, descriptions, elevation profiles and photos. This paper will also describe the process for collecting and preparing the trail information that is published on the ecoSports website.

Introduction

The Vail/Eagle Valley of Eagle County is located in the central mountains of Colorado. It includes the towns of Vail, Minturn, Red Cliff, Avon, Eagle and Gypsum. Like other mountain areas in the state, Eagle County has a wide range of elevation (6,000 – 14,000 feet) which creates a diversity of ecosystems. In addition, the area is almost 80% public land with about 600,000 acres managed by the USFS and 250,000 acres managed by the BLM. In the winter, the area accounts for just over 20% of Colorado's annual ski visits. All of these characteristics together provide a wonderful playground for outdoor enthusiasts. As a result, the area boasts a distinctive combination of resort and residential communities that thrive on tourism. While winter recreation in the Vail/Eagle Valley is well recognized, summer recreation has been somewhat undiscovered. The area is home to many world class outdoor experiences and can certainly be considered a "sports mecca". The ecoSports.com website was designed to promote summer sports in Eagle County, Colorado.

Project Vision

The vision of ecoSports.com was to create a free, expandable website to promote the "100 Best Adventures in Eagle County". The idea came from Eagle County Commissioner Arn Menconi who recognized the summer recreation potential of the area. At the time, there was no comprehensive way to get trails information for the assortment of summer activities in the County. In addition, businesses were having a hard time directing visitors to the local trails. Commissioner Menconi realized that some type of on-line resource providing trails information could benefit both visitors and locals. He

imagined that someone could go to a web page, pick a sport with an ability level and see a map of trails that met those criteria. With that idea in mind, he brought together different people and resources to begin work. In the end, the vision has culminated in a website that takes a fresh approach to distributing trails and recreation information.

Project Development

ecoSports.com is a website based on a set of integral components. These components include website design, GIS information, website content, database development, and custom web components. Each piece was constructed and managed by a different group and was essential to the overall architecture of the project. The Eagle County GIS Department provided all of the mapping data and developed the ArcIMS map service used in the website. The County's Innovation and Technology Department provided project management and a place to host the website. A private firm was chosen to design and develop the website as well as the administration tool to input and maintain content. The initial stages of the project began in early 2004 and brought the different developers together to design and test the system. Next, maps and trail content were added to the database for the initial release of the website. During the process, the system was fine-tuned to allow developers to make updates quickly and efficiently. Although the developers were in different locations, the system design allowed everyone to work independently and update information to a centralized database. As a result, the website was released within a short timeframe in June of 2004 with over 100 trail maps and descriptions.

Mapping

The Eagle County GIS Department was given the task of providing GIS data for the project. Commissioner Menconi knew the department had the resources and the expertise to make a significant contribution to the website. As the requirements for the project were identified, a database was developed that could support the mapping component of the website. The database design remained simple, and in the end would allow the ArcIMS service to serve maps faster and more efficiently. ArcMap was used in the editing and compilation process. Shapefiles and rasters were used for data storage. Once the database design was in place, the trails layer was populated. Routes were compiled together in one layer and attributed with trail id, difficulty and name. Data sources included Eagle County's own GIS data layers in addition to layers from other government agencies. The USFS and BLM transportation layers were especially useful. When existing datasets did not contain necessary trails information, a GPS unit was used to capture new routes. Once a trail was complete, it was converted to a 3D shapefile to construct an elevation profile. Although the trails layer was the most important layer in the database, other reference data layers were created to give users a sense of place.

These layers such as elevation, mountain peaks and streams were necessary to provide a complete and detailed view of a trail.

ArcIMS

ArcIMS was a perfect fit for the website because it could provide dynamic maps. Downloadable, static maps were considered early in the project, but did not provide the flexibility that ArcIMS had to offer. Since all of the website content would be centrally managed it made sense to do the same with the maps. ArcIMS would allow for easy updates to one map service. In addition, the extent of the trail map would be user driven. An AXL file was created after compiling and organizing each data layer. The initial file was created with ArcIMS Author. Subsequent additions and changes were made through a text editor. The AXL file uses scale factors to control the display of different reference data layers. Some renderers were used for labeling and thematic mapping, but were overall kept to a minimum to optimize the speed of the map service. The ArcIMS service interacts with other components of the website via the database and custom web components developed with Macromedia products. These customizations will be discussed next.

Administration Tool

The ecoSports Administration tool was developed to manage all of the information viewed on the ecoSports website. It was created in a web based format to provide an efficient way to enter and maintain content for the website. As a result, the application is centralized and different people can update content from anywhere with an internet connection. The website content was divided into different elements such as map extents, trailhead locations, trail descriptions, sports, events, athlete profiles and message boards. Each of these items supplies information to users of the website. The key to making the administration tool successful was Macromedia's ColdFusion. This technology allowed the website developers to create custom components to be used as middleware between the administration tool, the database, the map service and the website. In addition, this software is also optimized to work with Flash, another Macromedia technology that was crucial to the look of the ecoSports.com website.

Flash

Macromedia's Flash Player is required to view the ecoSports.com website. Although this is an additional piece, it allowed the developers to take advantage of technology that is being used on 97% of Internet-enabled computers worldwide. Flash allows users to be immersed in ecoSports.com. For instance, users are hooked immediately when they enter the site. Beginning with the shutter affect on the left side while selecting a sport, users are drawn to interact with different items on the page. As users move through choosing an ability level and a specific trail, they are lead through smooth transitions that are very

visually appealing. These types of interaction are possible by using the strength of Flash technology. Maps, graphics and text are all integrated to create an eye-catching experience. More striking than most websites in general, ecoSports.com is an especially attractive trails website. By using Flash, the project team was able to make ecoSports.com unique among other trails websites.

Website Navigation

The diagrams below illustrate the navigation of the ecoSports.com website.

Figure 1 – User enters site



Figure 2 – User selects sport

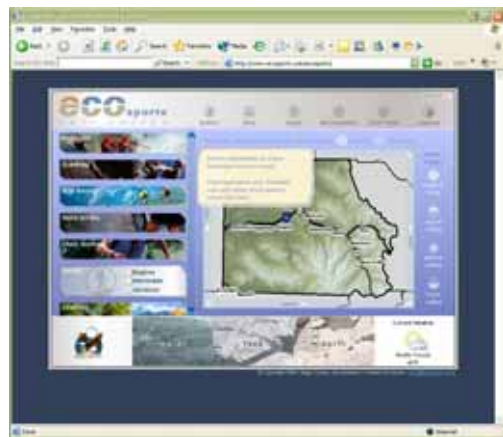


Figure 3 – Users chooses ability level and “rolls over” trailhead

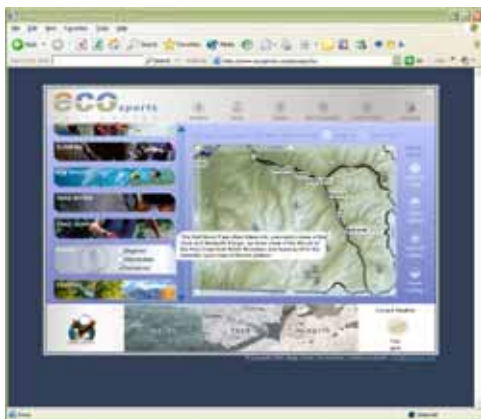


Figure 3 – Users views map and trail description

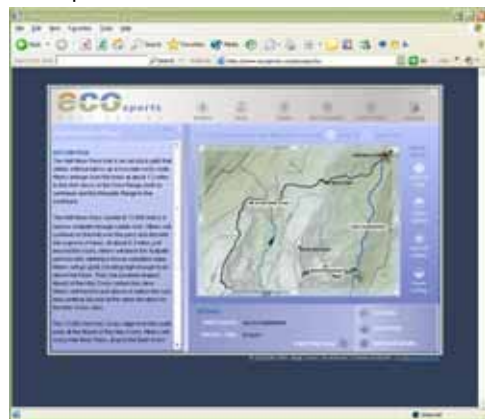
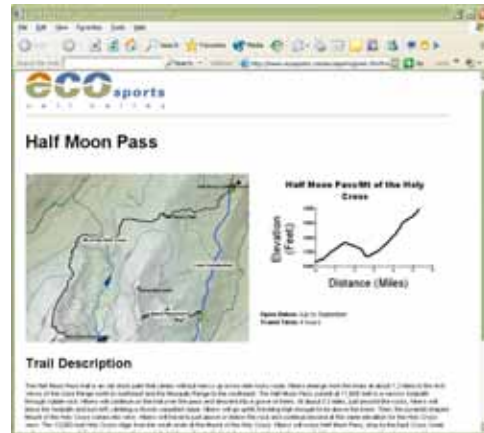


Figure 5 – Users creates print page



Ride Guide

The ecoSports.com "Guide to Mountain Biking & Road Biking in the Vail Valley" was created to supplement the website. When the guide was released in late summer 2004 it fulfilled the need for a hard copy biking guide in Eagle County. Similar guides were available in other counties but contained very basic maps. Like the website, the guide was created to assist visitors and locals in finding their way to the trails.

The maps in the ecoSports.com guide were created with ArcMap 8.3, Spatial Analyst and 3D Analyst. By using ArcMap, the Eagle County GIS Department was able to take advantage of its cartographic functionality and produce high quality maps. Many of the same data layers were used from the ArcIMS service. As the maps were created, they were exported to JPEG format and sent to the graphic artist for layout. To keep printing costs down, the maps were produced in black and white. The final product was a 31 page publication that featured 18 mountain bike rides and 5 road bike rides.

Conclusion

ecoSports.com was a successful attempt of providing trails information in a unique fashion. With over 100 trail experiences, the website has satisfied the need for comprehensive trails information. Visitors and locals now have a one-stop resource for a wide assortment of summer activities. The project brought together a diverse collection of people and technologies to create a rich, interactive website. Using a combination of ESRI and Macromedia products, the website is a great example of blending information with cutting edge technology. ArcMap provided a full toolset for creating and compiling critical data layers. ArcIMS was used to serve dynamic maps on the fly. Flash contributed to a rich user experience. ColdFusion was a critical underlying piece that

facilitated communication between all of the website components. In the future, the website will continue to be a free resource for trails information in the Vail/Eagle Valley. In addition, the project team plans to enhance the existing content of the website by mapping new routes, using message boards and adding photos. Ultimately, ecoSports.com is a model for similar areas hoping to promote and provide information for their recreational opportunities.

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