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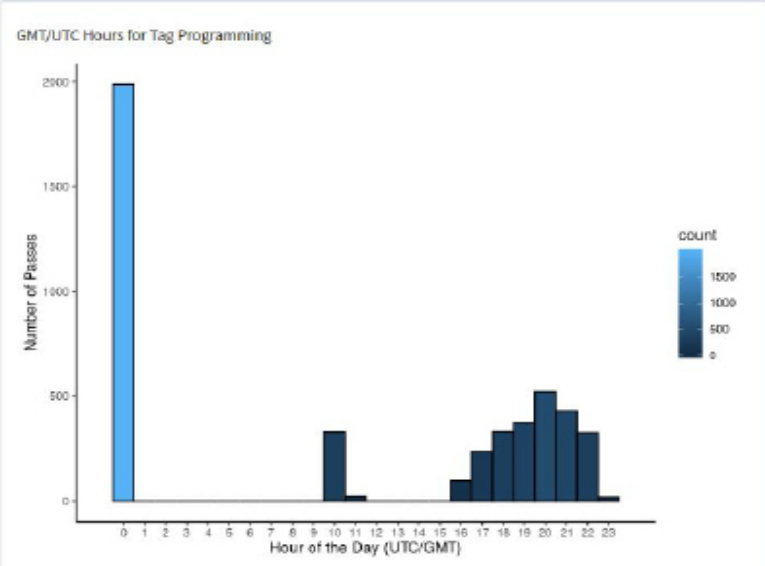
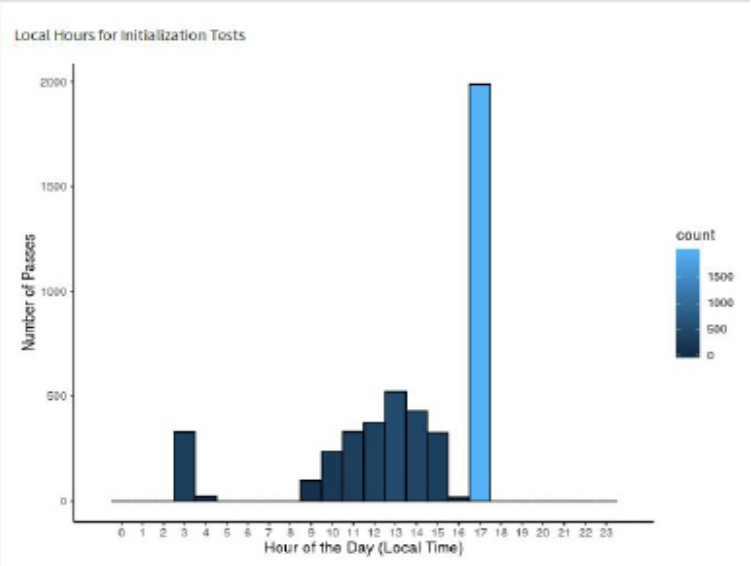
HOW TO MAXIMIZE SATELLITE COVERAGE





CLS offers a satellite pass prediction program that helps forecast satellite coverage in a given location. Additionally, Wildlife Computers offers a tool to graph the results and display the best hours for tags to transmit data for up to six months. The Wildlife Computers tool will display satellite pass histograms in both UTC/GMT for tag programming, and in local time for tag initialization and testing.

The following instructions describe the two-step process.

Step One: Obtain Argos Pass Prediction Data for Six Months

To determine when satellites will be in view, log onto the CLS website at http://www.argos-system.org and select "DATA ACCESS." Log in with your Argos username and password. ***Ensure that the time settings next to the login username are set to UTC. If not, change them using Settings.***

To run a simulation, select "Satellite Pass Prediction" on the right side of the dashboard.

- Set your simulation period—select today's date as the "Start Date." Then select "End Date." Use the calendar box on the right-hand side to select an end date that is six months out from today's date (the calendar will be grayed-out after six months). A shorter period can be selected for initialization testing or shorter deployments.
- Select satellites—ensure all satellites are selected.
- Enter location—select "Latitude/Longitude/Altitude." Input your deployment location coordinates. The location will display on the world map on the right-hand side. Altitude must also be set to "0" for marine applications.
- Click "Simulate"—the results spreadsheet will now appear.
- Click "Export"—select to save as a .CSV file and save it to an easy-to-access location on your computer.
- Exit the Argos website.

Step Two: Plotting the Results

- Use a web browser to navigate to the following link: http://bit.ly/argospassprediction. Adjust the UTC/GMT slider to the UTC/GMT offset of your current location, including possible daylight-saving time.
- Upload the Argos file—browse and import the pass prediction file saved from Argos. The program will display the pass prediction data for the next six months which will assist in selecting the best hours to activate the tag.

Tags must always be set and programmed in UTC/GMT time. The "Local Time" histogram is only used for identifying the best hours for tag initialization and testing.

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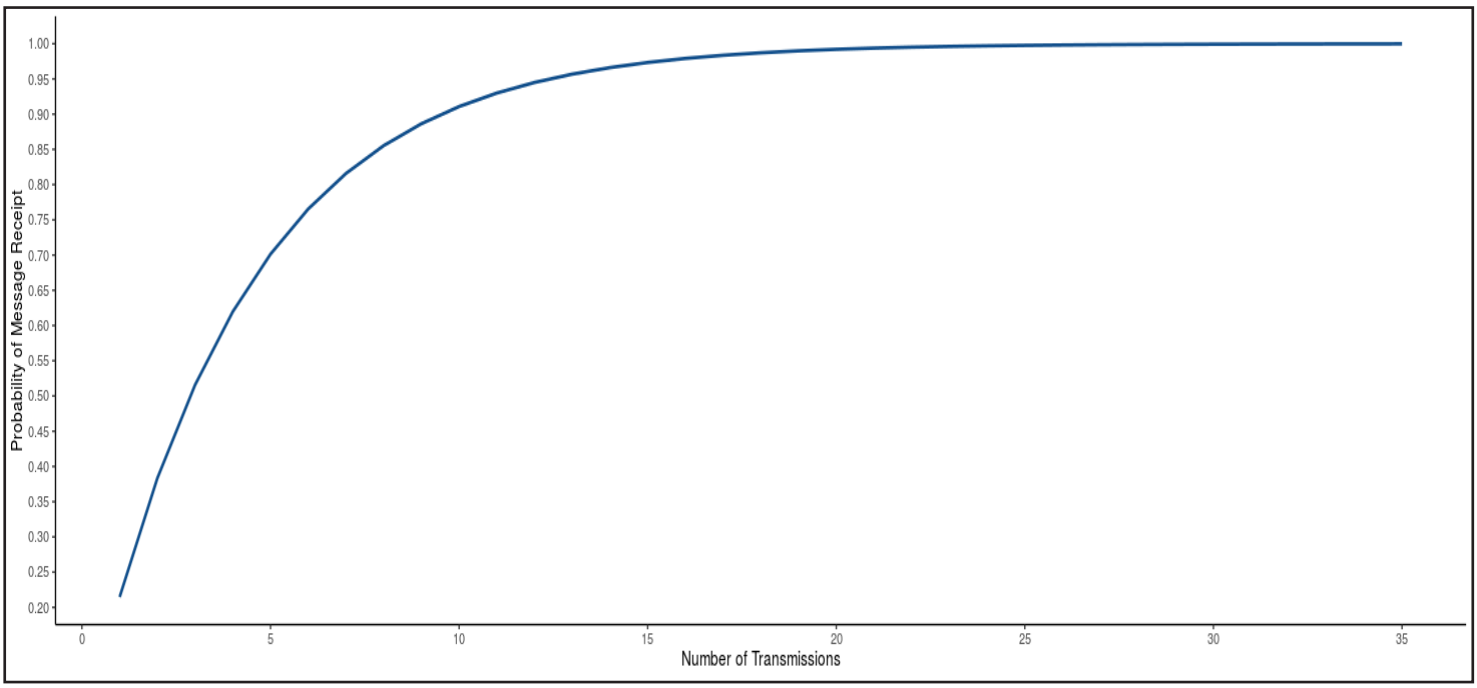
HOW TO MAXIMIZE SATELLITE COVERAGE-CONTINUED

Data Transmission Success Probability

The Wildlife Computers tool also displays the probability of tag data messages being received at this location plotted against the number of times the transmission is repeated. The "Uplinks per Message" default setting of 10 can be adjusted when programming SPOT tags, however, Wildlife Computers should be consulted before setting it higher than 13 as the buffer size is limited.



Frequently Asked Questions

Q: **What if my animal is going to move long distances?**
A: If you expect your animal to move less than 500 km from your deployment location, pass prediction will improve Argos performance. However, the utility of pass prediction diminishes with distance and the number of hours you wish to transmit. If your animal will be moving greater than 500 km, consider leaving the tag transmitting all hours or contact Wildlife Computers for assistance in selecting which hours to transmit.

Q: **What if my deployment is longer than six months?**
A: Satellite passes will only vary slightly over time. If certain hours have very few satellite passes, then this is unlikely to change in the future.

Q: **What is Wildlife Computers recommended probability of a successful data transmission (How many times should a data message be re-transmitted)?**
A: This varies with latitude and satellite coverage. The default setting of 10 transmissions per message will normally ensure a high percentage of data messages are received, however, a setting of 13 will increase the percentage closer to the equator where there are fewer satellite passes.

Q: **Why will my histograms not plot?**
A: Check your Argos web settings. They need to be configured to provide a .csv (comma-separated values) file. You can change the settings in Argos or change the setting in the Wildlife Computers tool. You should also check the Date-Time Specification is correct.

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