While manufacturers design their aircraft to be safe as possible, malfunctions are inevitable. When a plane does not make it from point A to point B, it is our duty to first locate the wreckage and then inform the public on the cause of the crash. Locating a crash in open ocean can be compared to finding a needle in a haystack, and even when parts of an aircraft are found, finding the remainder of the aircraft may be just as difficult.

However, a mathematical model has been developed to maximize our future search efforts. By incorporating probability theory and well researched mathematical theories, this model optimizes probability of locating the aircraft while also minimizing the cost of searching. Fortunately, this model has been developed to be extendable for different needs. It is capable of taking in different parameters such as search technologies being used, number of search aircraft, and search size, making it applicable in a multitude of scenarios.

After using a strongly researched model to most efficiently dispatch search planes to locate floating debris, another model is applied to find where the plane actually made contact with the water. After this has been calculated, underwater vehicles equipped with sonar searching technologies are deployed in a methodical manner to best search a given underwater area. Each consecutive deployment narrows down the search area to the most probable area of locating the sunken aircraft on the sea floor.

Once the wreckage is located, it is in our best hopes that the black box of the aircraft is still intact in order to better investigate what actually occurred during the last few minutes of flight. Although mathematics cannot always prevent aircraft disasters, it is now demonstrated that it can be used to accurately locate sunken aircraft in a timely and cost efficient manner.