Crash Site Débris Mobile Application

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Aircraft Crash Debris Recovery Mobile Application

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MOJAVE DESERT ECOSYSTEM PROGRAM

UNIVERSITY OF Redlands

Picture Acknowledgements: http://www.wshdwallpapers.com/wallpapers/other/airplane-in-sky.html;

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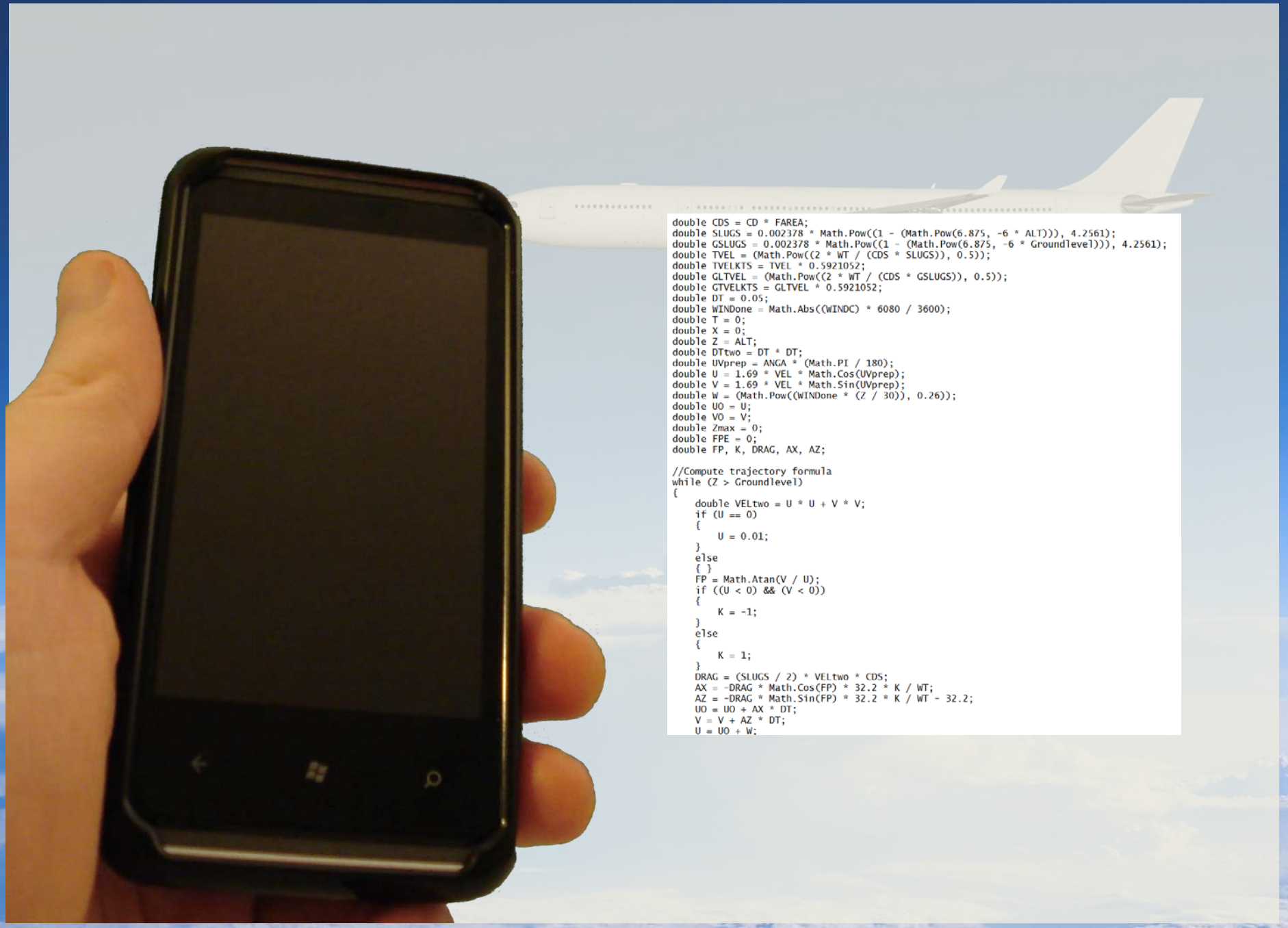

```
double CDS = CD * FAREA;
double SLUGS = 0.002378 * Math.Pow((1 - (Math.Pow(6.875, -6 * ALT))), 4.2561);
double GSLUGS = 0.002378 * Math.Pow((1 - (Math.Pow(6.875, -6 * Groundlevel))), 4.2561);
double TVEL = (Math.Pow((2 * WT / (CDS * SLUGS)), 0.5));
double TVELKTS = TVEL * 0.5921052;
double GLTVEL = (Math.Pow((2 * WT / (CDS * GSLUGS)), 0.5));
double GTVELKTS = GLTVEL * 0.5921052;
double DT = 0.05;
double WINDone = Math.Abs((WINDC) * 6080 / 3600);
double T = 0;
double X = 0;
double Z = ALT;
double DTtwo = DT * DT;
double UVprep = ANGA * (Math.PI / 180);
double U = 1.69 * VEL * Math.Cos(UVprep);
double V = 1.69 * VEL * Math.Sin(UVprep);
double W = (Math.Pow((WINDone * (Z / 30)), 0.26));
double UO = U;
double VO = V;
double Zmax = 0;
double FPE = 0;
double FP, K, DRAG, AX, AZ;

//Compute trajectory formula
while (Z > Groundlevel)
{
    double VELtwo = U * U + V * V;
    if (U == 0)
    {
        U = 0.01;
    }
    else
    { }
    FP = Math.Atan(V / U);
    if ((U < 0) && (V < 0))
    {
        K = -1;
    }
    else
    {
        K = 1;
    }
    DRAG = (SLUGS / 2) * VELtwo * CDS;
    AX = -DRAG * Math.Cos(FP) * 32.2 * K / WT;
    AZ = -DRAG * Math.Sin(FP) * 32.2 * K / WT - 32.2;
    UO = UO + AX * DT;
    V = V + AZ * DT;
    U = UO + W;
```

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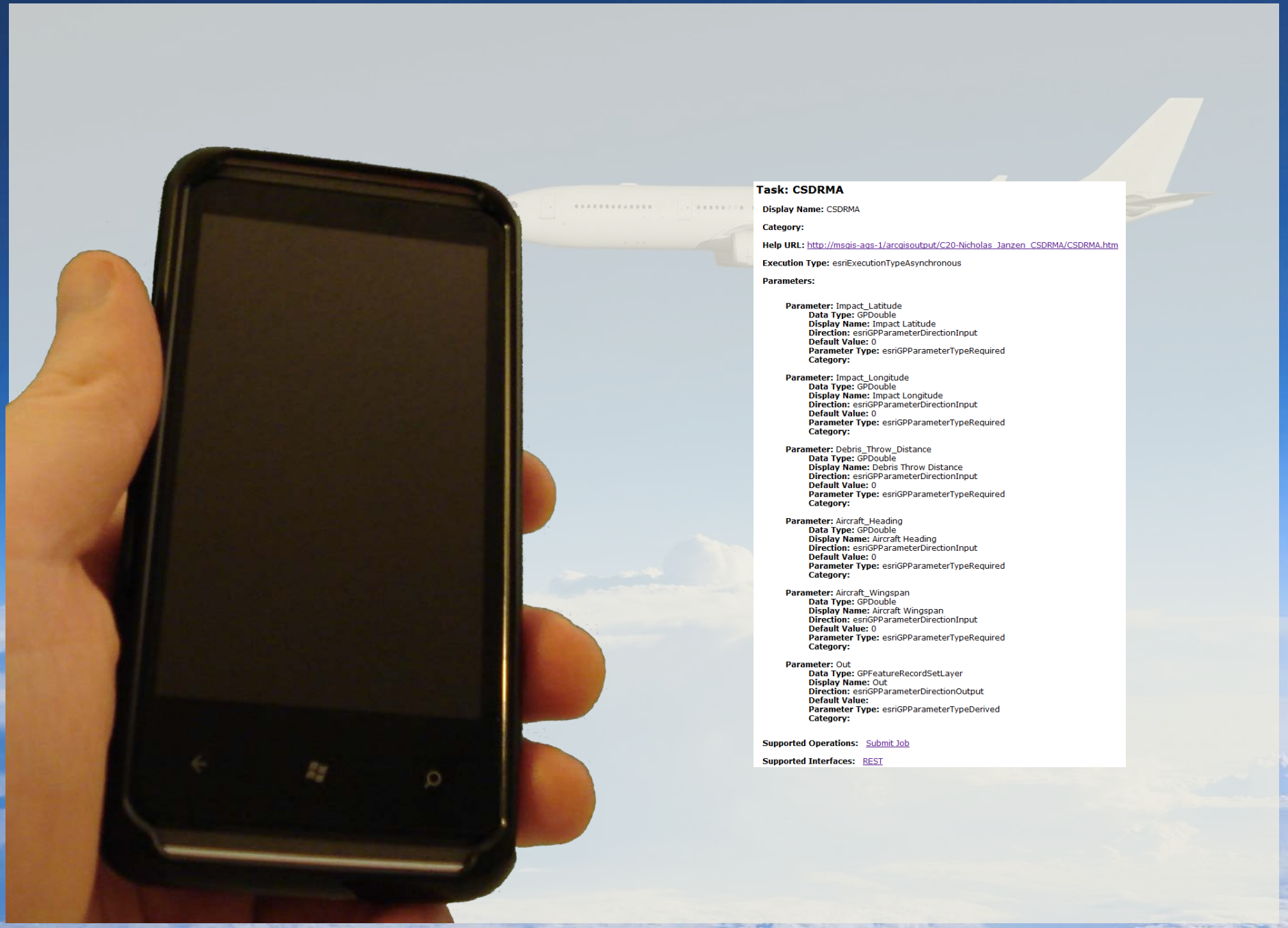

Task: CSDRMA

Display Name: CSDRMA

Category:

Help URL: http://msgis-ags-1/arcgisoutput/C20-Nicholas_Janzen_CSDRMA/CSDRMA.htm

Execution Type: esriExecutionTypeAsynchronous

Parameters:

Parameter: Impact_Latitude
- **Data Type:** GPDouble
- **Display Name:** Impact Latitude
- **Direction:** esriGPParameterDirectionInput
- **Default Value:** 0
- **Parameter Type:** esriGPParameterTypeRequired
- **Category:**

Parameter: Impact_Longitude
- **Data Type:** GPDouble
- **Display Name:** Impact Longitude
- **Direction:** esriGPParameterDirectionInput
- **Default Value:** 0
- **Parameter Type:** esriGPParameterTypeRequired
- **Category:**

Parameter: Debris_Throw_Distance
- **Data Type:** GPDouble
- **Display Name:** Debris Throw Distance
- **Direction:** esriGPParameterDirectionInput
- **Default Value:** 0
- **Parameter Type:** esriGPParameterTypeRequired
- **Category:**

Parameter: Aircraft_Heading
- **Data Type:** GPDouble
- **Display Name:** Aircraft Heading
- **Direction:** esriGPParameterDirectionInput
- **Default Value:** 0
- **Parameter Type:** esriGPParameterTypeRequired
- **Category:**

Parameter: Aircraft_Wingspan
- **Data Type:** GPDouble
- **Display Name:** Aircraft Wingspan
- **Direction:** esriGPParameterDirectionInput
- **Default Value:** 0
- **Parameter Type:** esriGPParameterTypeRequired
- **Category:**

Parameter: Out
- **Data Type:** GPFeatureRecordSetLayer
- **Display Name:** Out
- **Direction:** esriGPParameterDirectionOutput
- **Default Value:**
- **Parameter Type:** esriGPParameterTypeDerived
- **Category:**

Supported Operations: Submit Job

Supported Interfaces: REST

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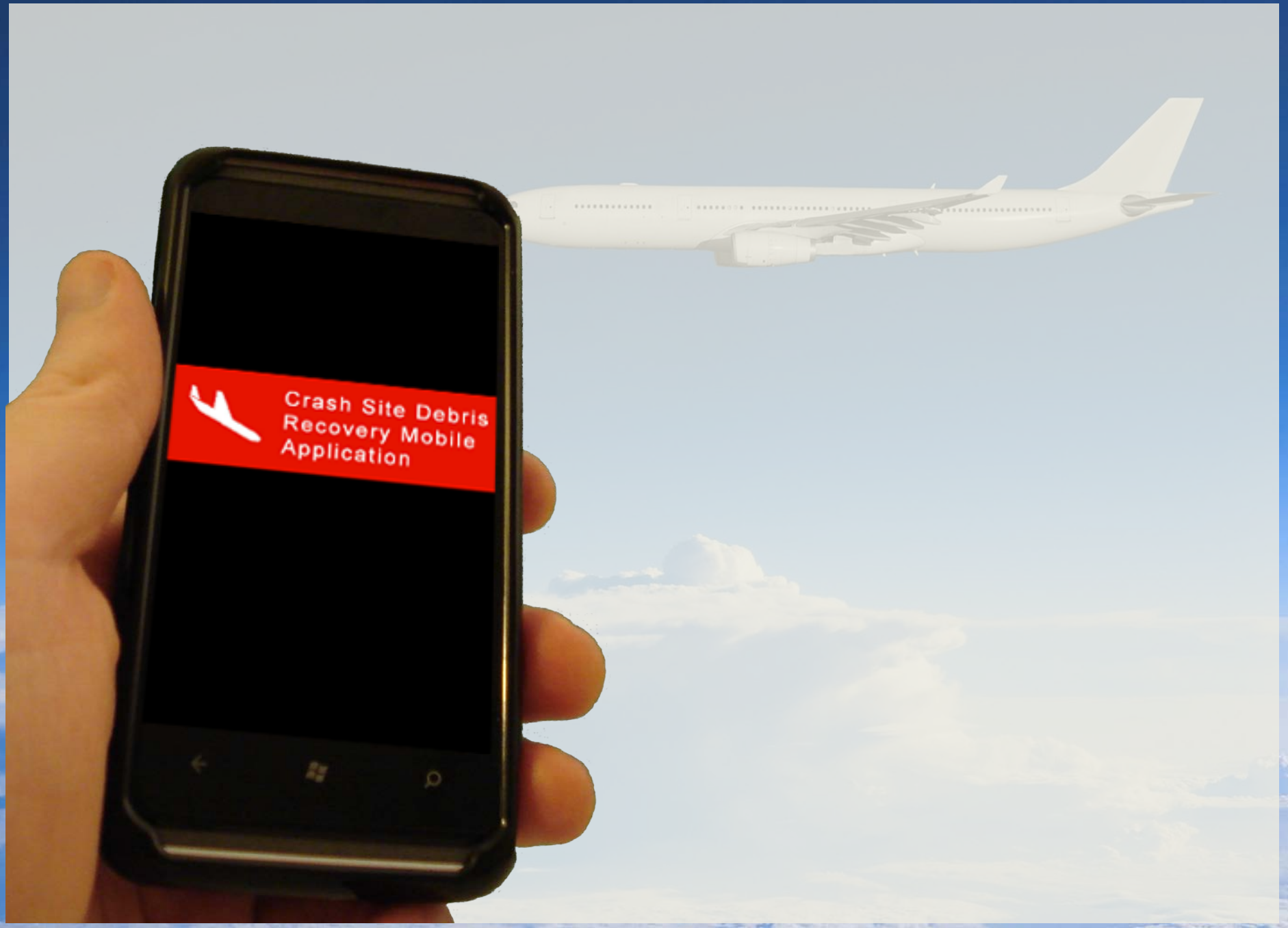

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Crash Site Debris
Recovery Mobile
Application

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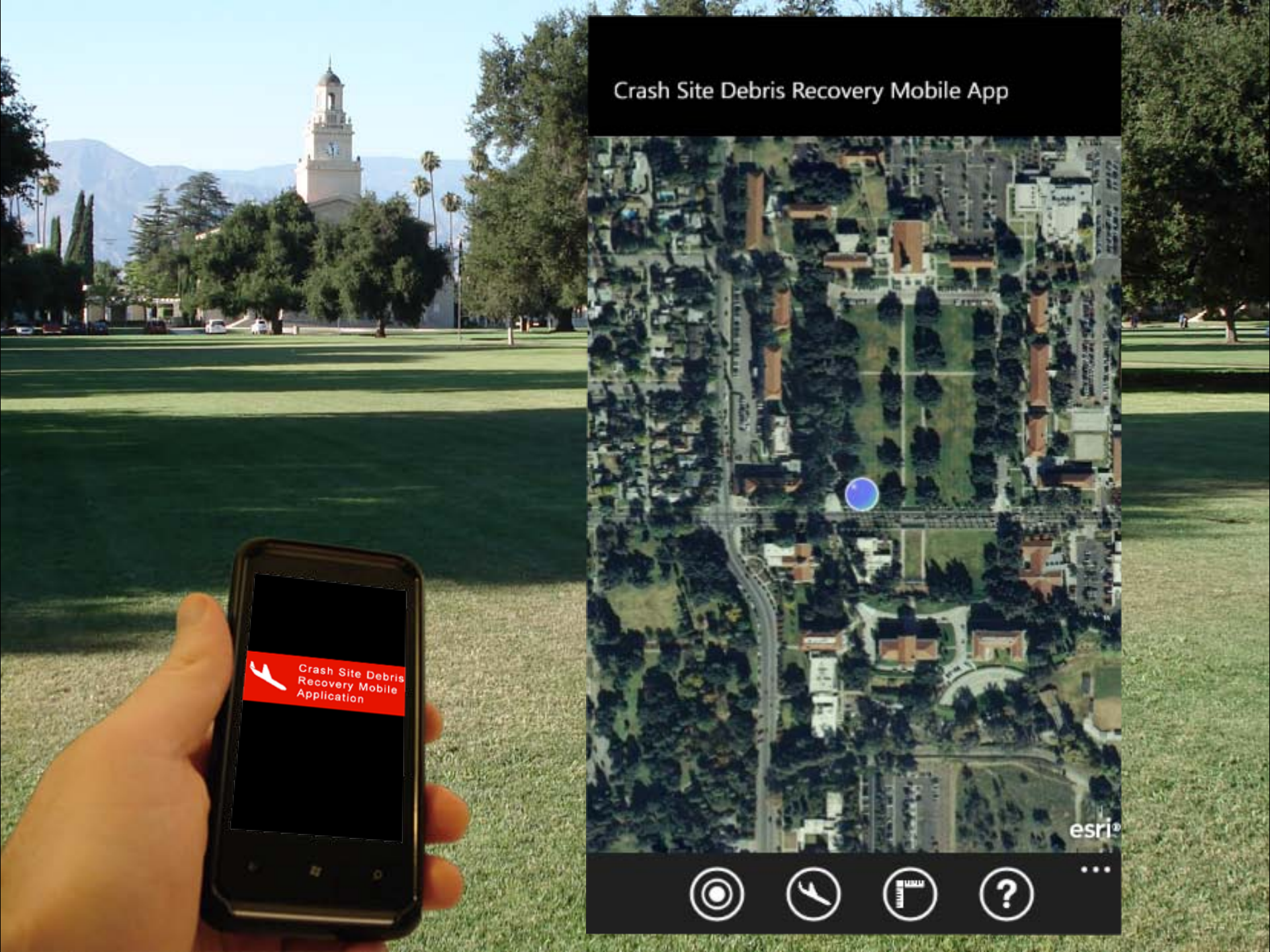
Crash Site Debris Recovery Mobile App
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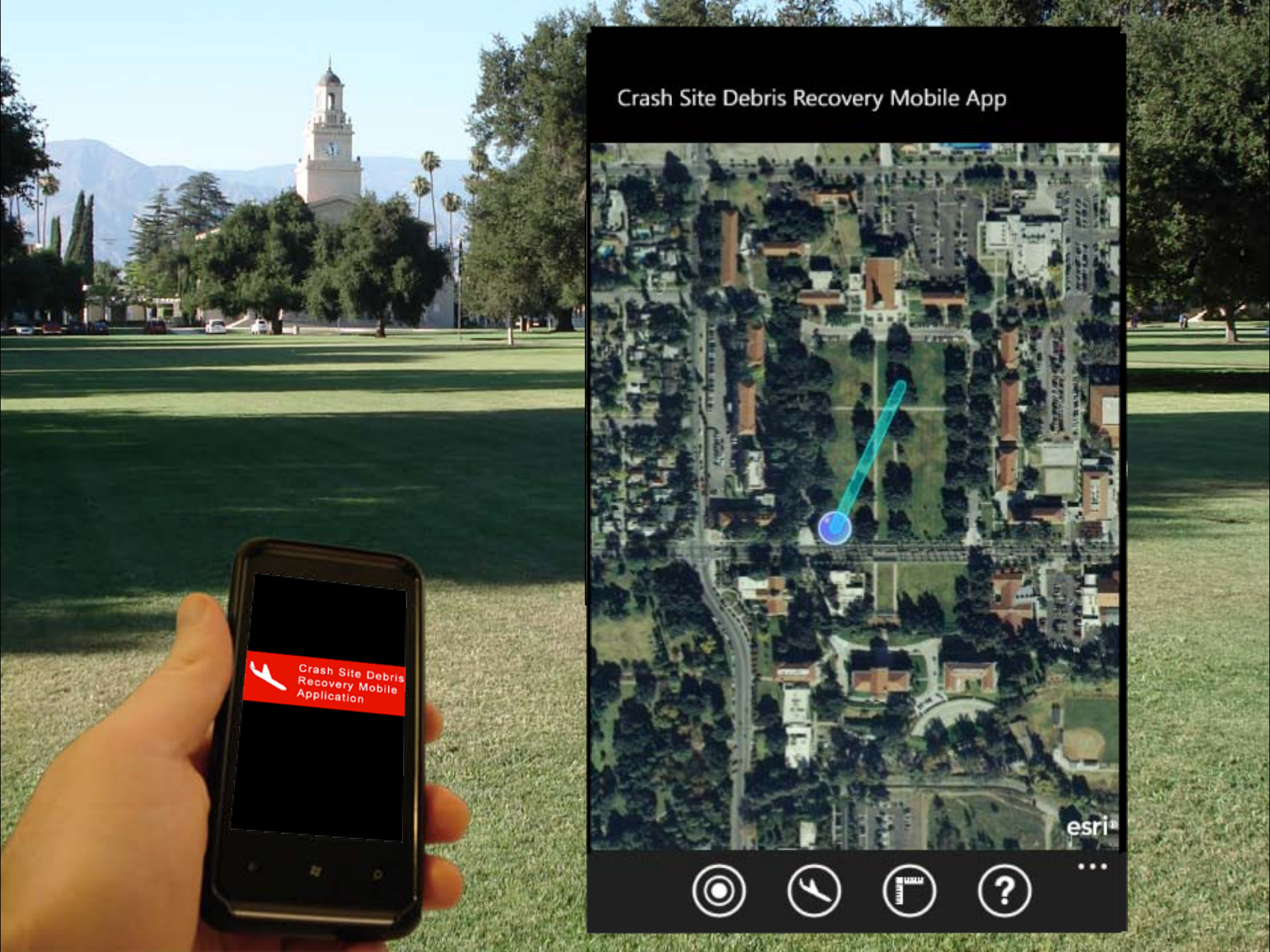
Crash Site Debris Recovery Mobile App
flight info opti
Speed of Aircraft (kts)
78
Aircraft Heading (deg)
21
Angle of Aircraft Descent
42
Crash Site Debris Recovery Mobile Application

Crash Site Debris Recovery Mobile App
optional result
Ground Wind Speed (kts)
3
Ground Wind Direction (deg)
272
Terrain Angle (deg)
Aircraft Terrain Direction
Upslope
Downslope
Crash Site Debris Recovery Mobile Application

Crash Site Debris Recovery Mobile Application
Crash Site Debris Recovery Mobile App
results aircraft
Debris Terminal Velocity:
622.53 kts
Time to Impact:
6.75 sec
Debris Throw Distance:
825.43 ft
Angle of Impact:
-42.09 deg
Speed of Impact:
110.05 kts
Max Altitude of Thrown Debris:
184.29 ft
Calculate
Map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Crash Site Debris Recovery Mobile App
aircraft type fli
Aermacchi S-211
Beechcraft Model 99
Boeing 747-200
Boeing 737-200
Cessna 172 Skyhawk
Cessna 310
Convair 880
Douglas DC-8-32
Hawker Beechcraft Hawker 800
Learjet 24
Lockheed F-104 Starfighter
Lockheed JetStar
Lockheed Martin F-22 Raptor
McDonnell Douglas F-4 Phantom II
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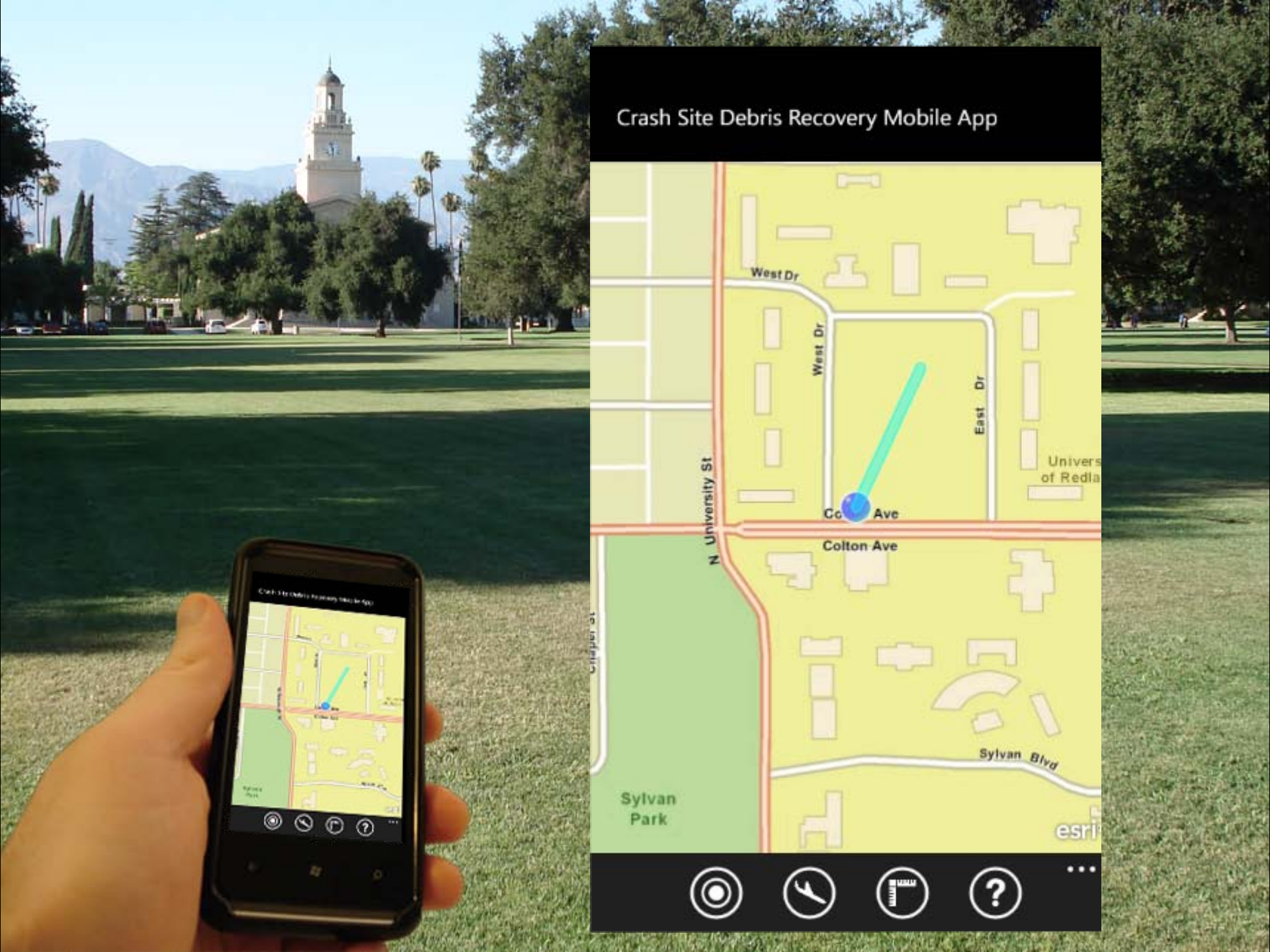
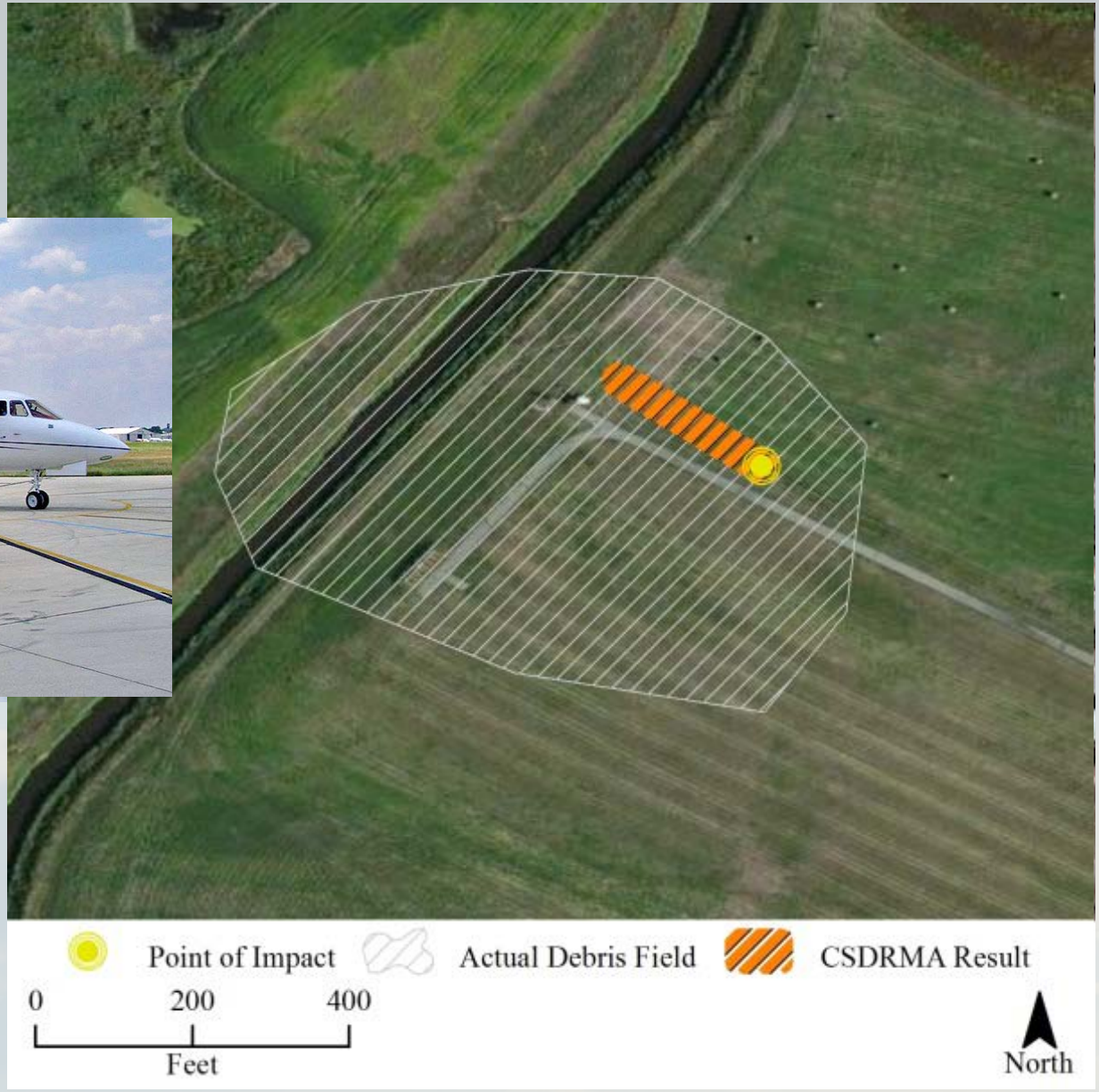

Crash Site Debris Recovery Mobile App
West Dr
West Dr
East Dr
N University St
Colton Ave
Sylvan Blvd
Sylvan Park
esri



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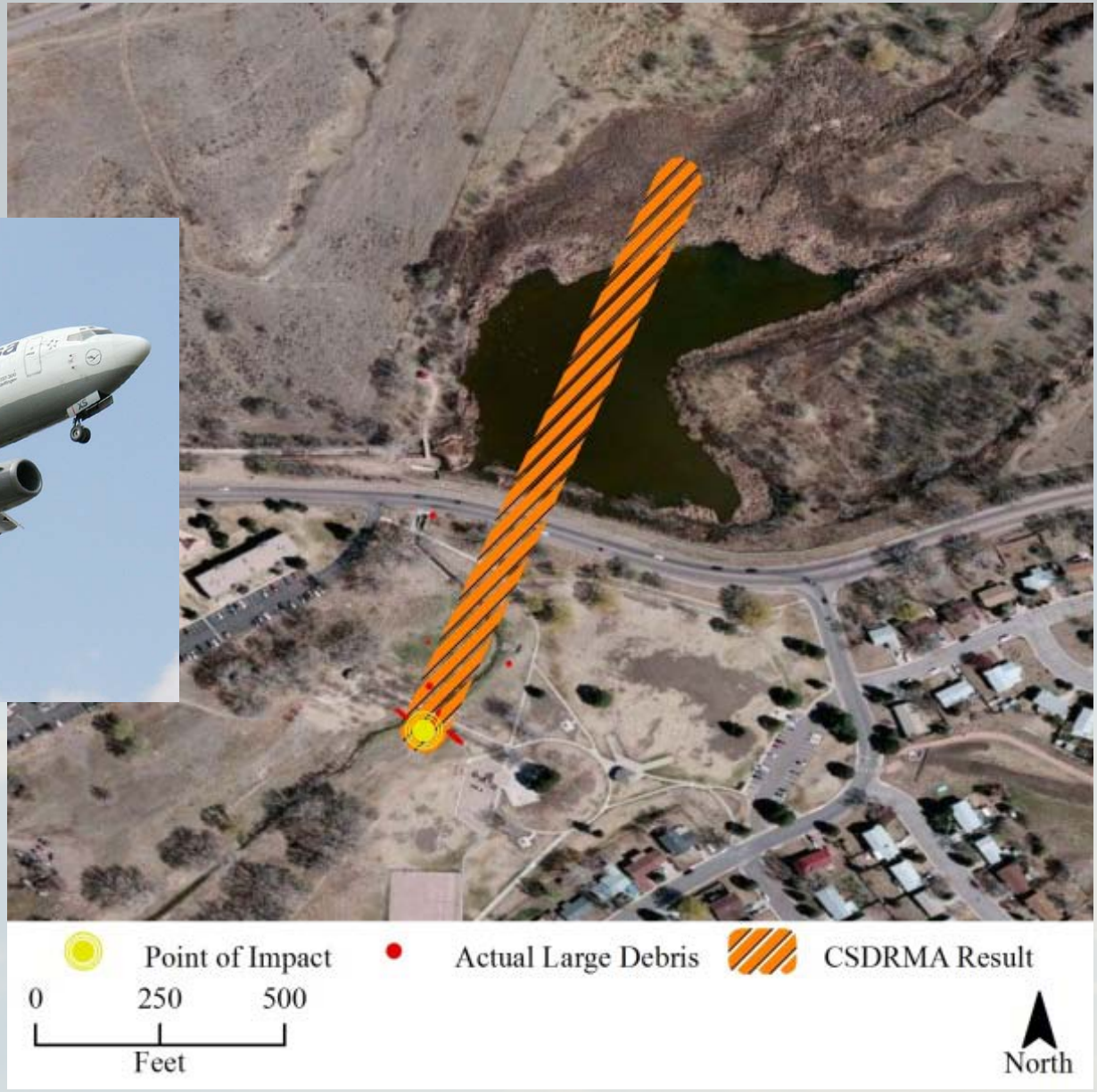

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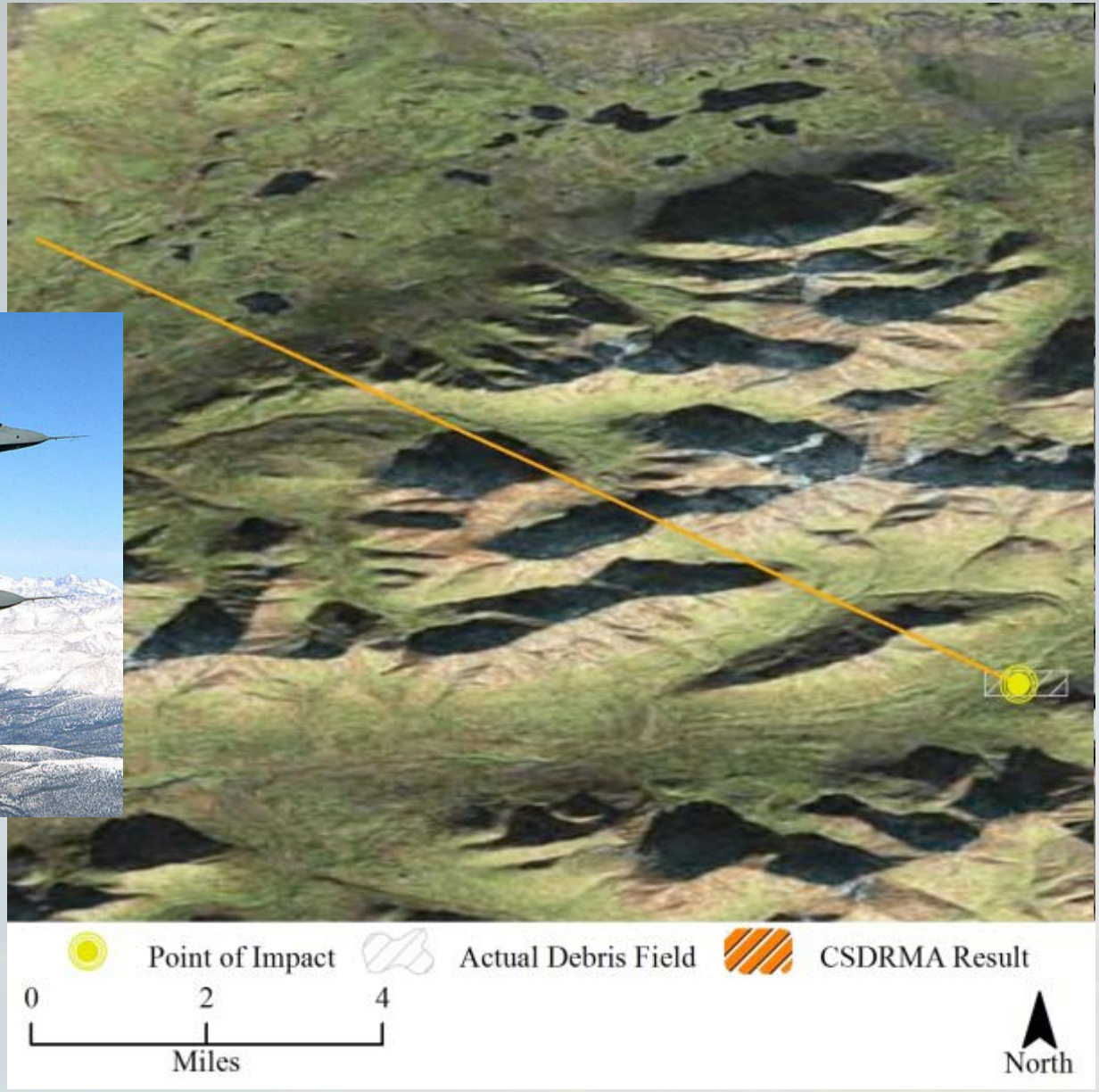

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Thank You

www.mojavedata.gov/crash.html

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