

DigitalGlobe – Satellite Collision Avoidance & Wellbore Location Validation

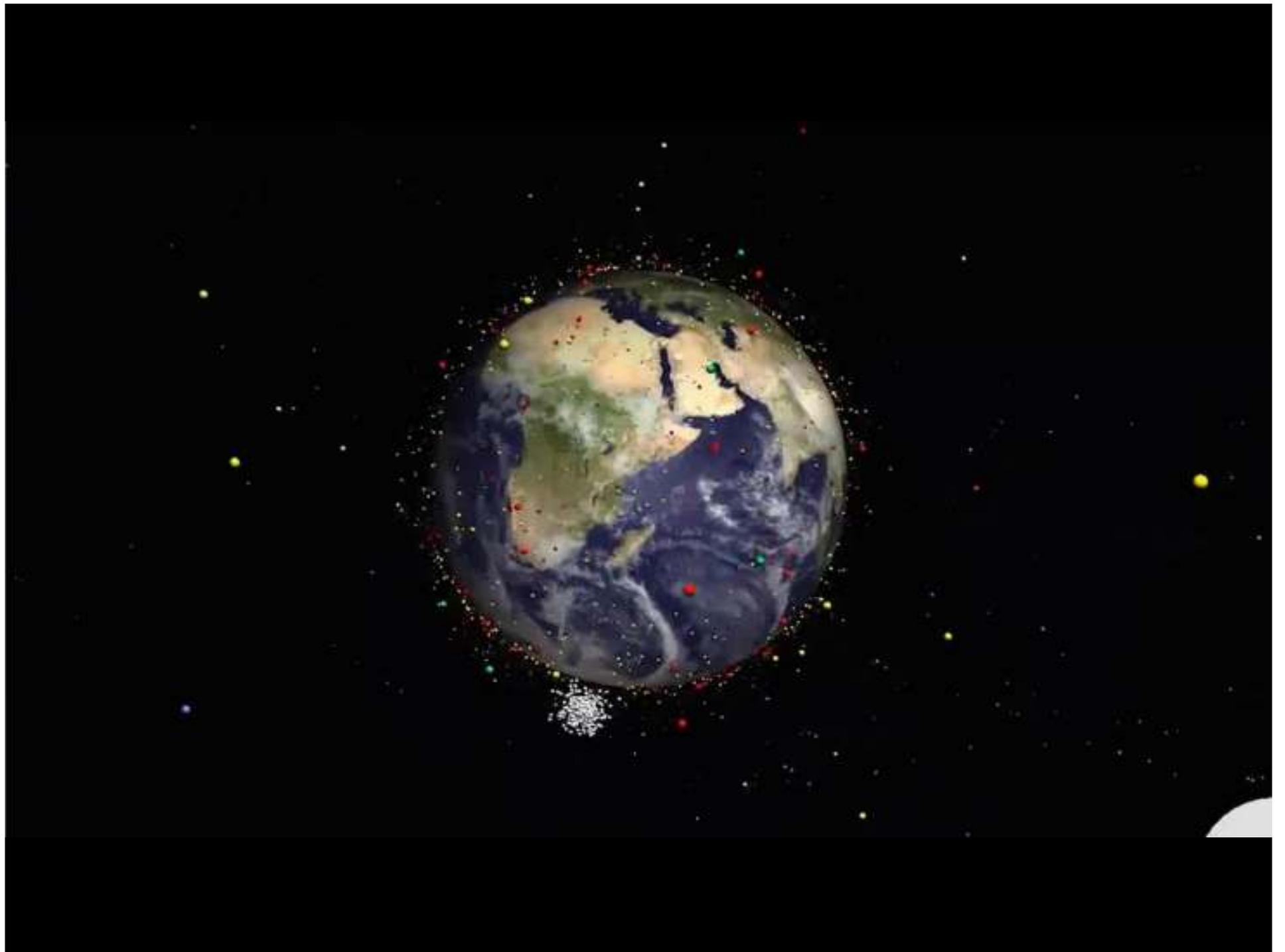
By Taner Kodanaz & Lamar Landry





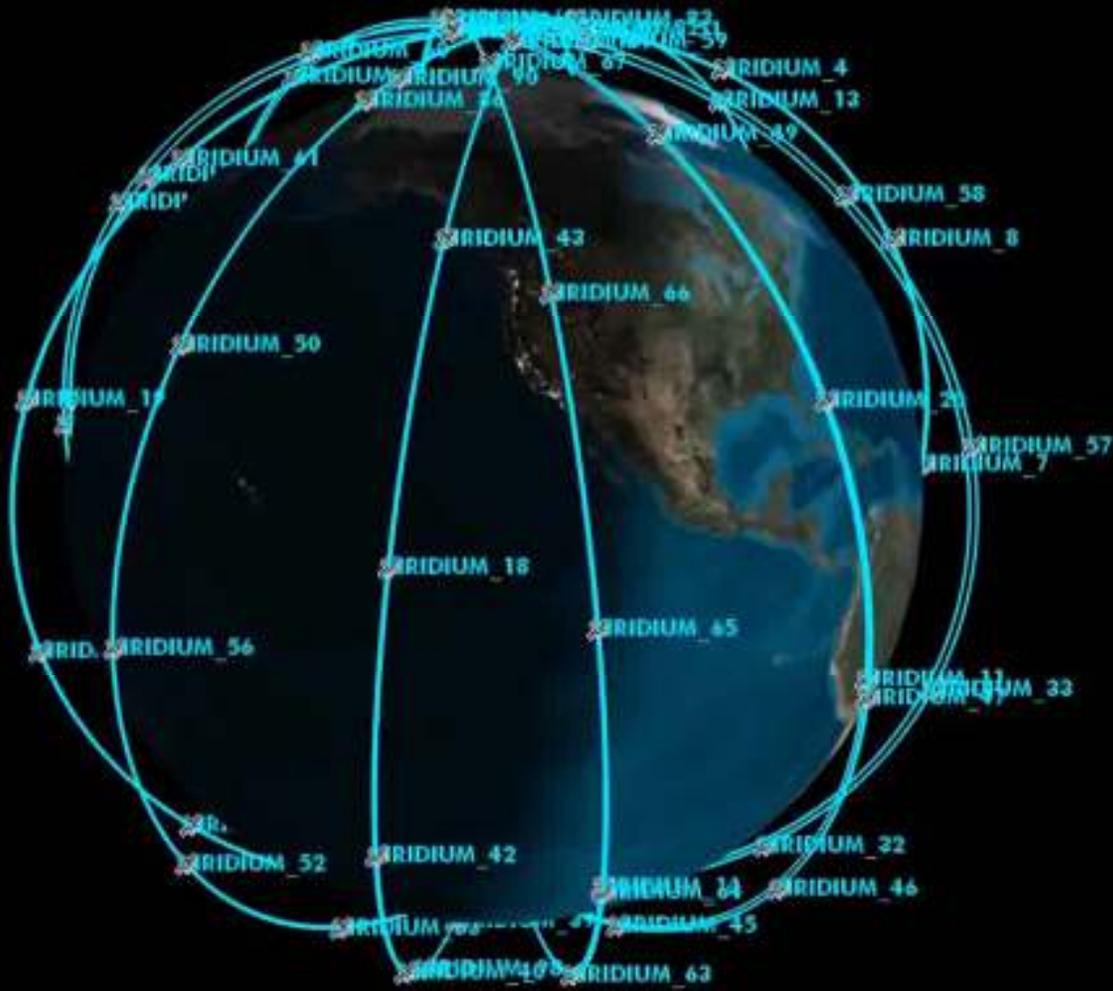


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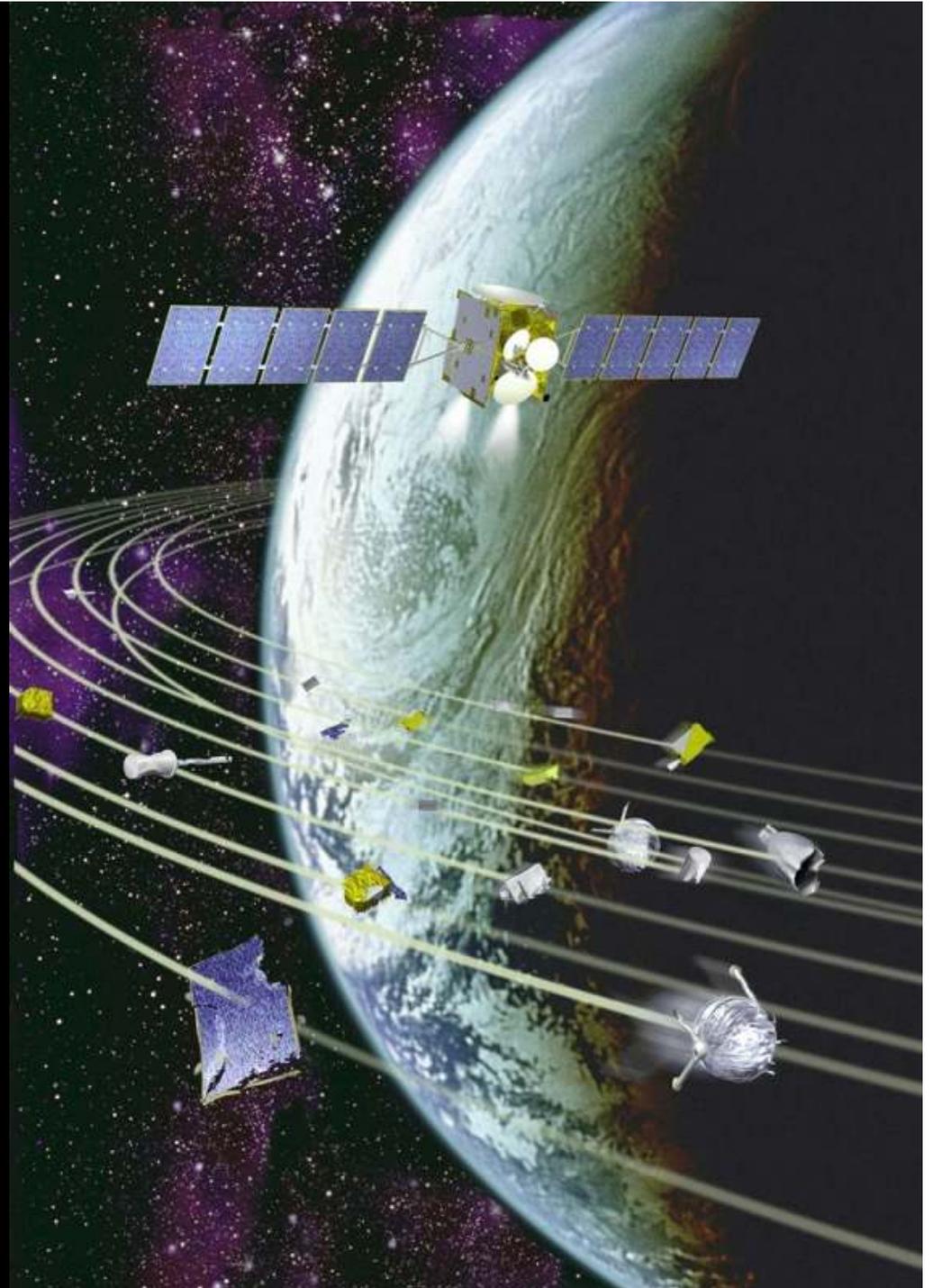








- 1. Detect, track, and identify**
- 2. Threat warning and assessment**
- 3. Intelligence characterization**
- 4. Data integration**

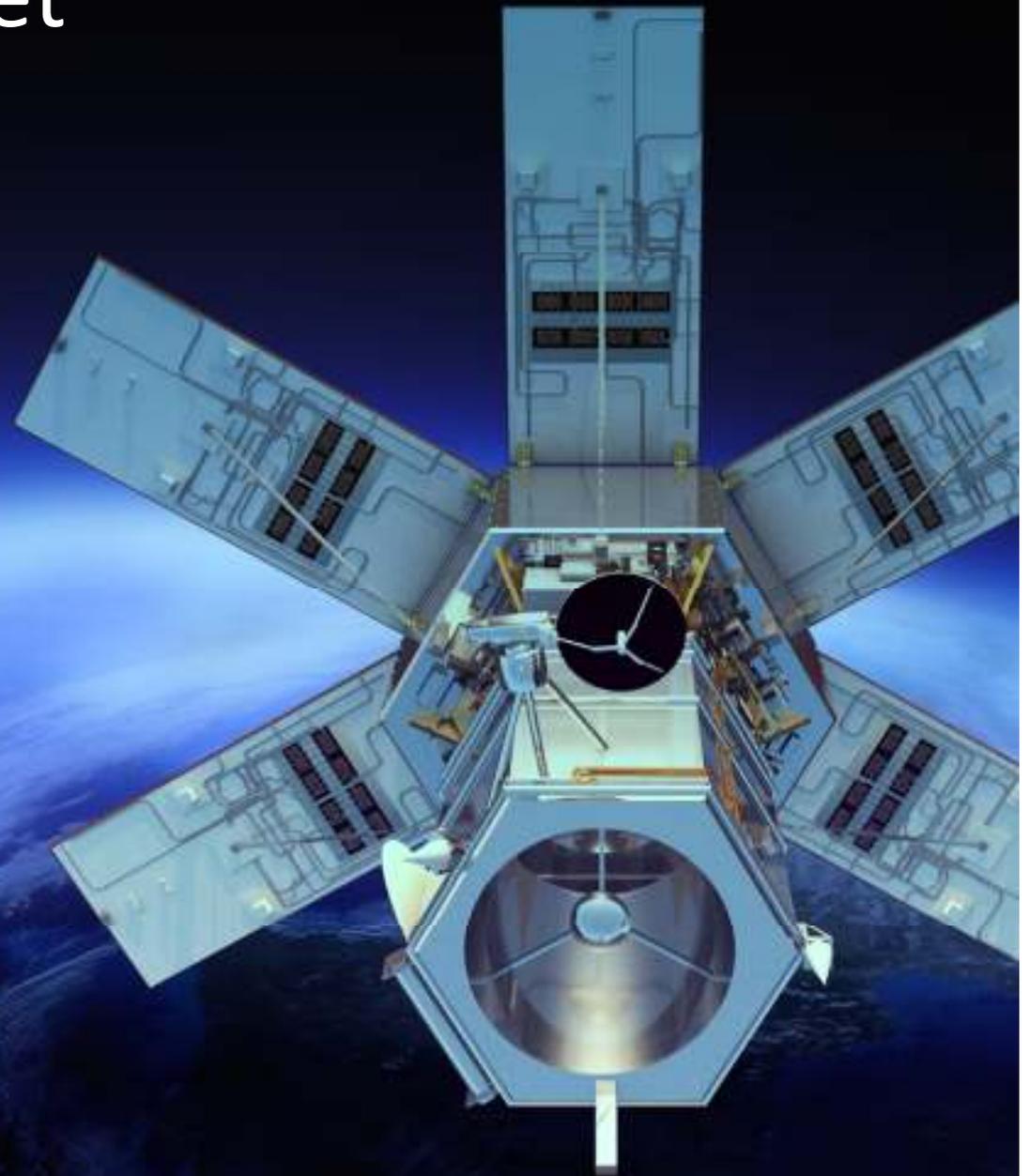






Adding a new asset

WorldView-4



DigitalGlobe is...



IKONOS®

.82 meter resolution
9 m CE90



QuickBird®

.65 meter resolution
23 m CE90



WorldView-1®

.50 meter resolution
<4 m CE90



GeoEye-1®

.46 meter resolution
<3.5 m CE90



WorldView-2®

.46 meter resolution
<3.5 m CE90



WorldView-3®

.30 meter resolution
<3.0 m CE90



WorldView-4®

Launch scheduled:
Fall 2016

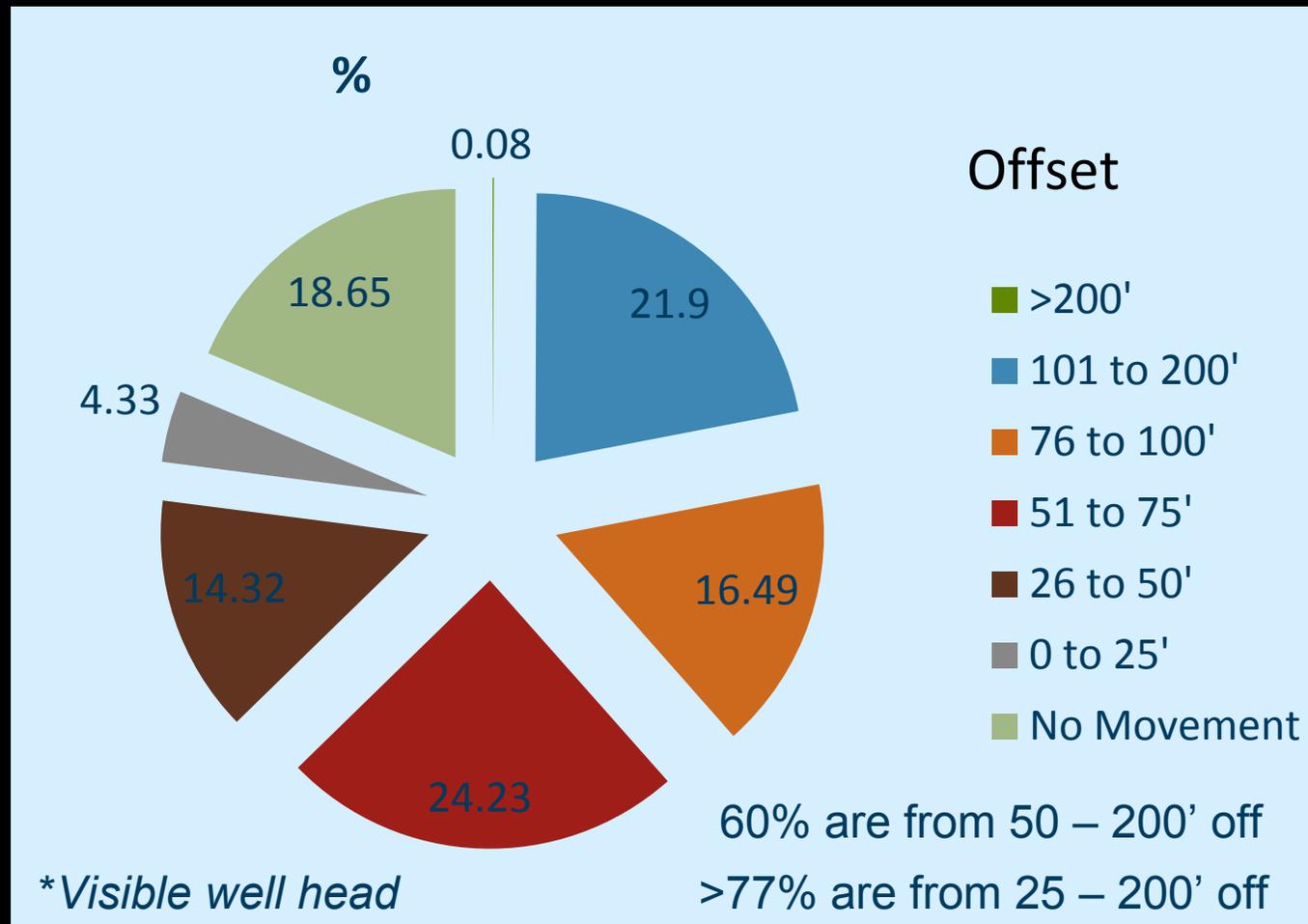
CURRENTLY IMAGING IN ORBIT

AVAILABLE VIA DIGITALGLOBE ARCHIVE



DigitalGlobe: Seeing a better world™

How Bad Is The Data



One Example of 1200 Wells And Typical

Can You Trust This Data

P	Q	R	S	T	U	V	W	X	Y
County	State	Surf Lat	Surf Lon	Surf X	Surf Y	Bot Lat	Bot Lon	Bot X	Bot Y
CRANE	TX	31.46951	-102.36331	1367153.5	661449.7	0	0	0	0
CRANE	TX	31.46951	-102.36331	1367153.5	661449.7	0	0	0	0
CRANE	TX	31.4705	-102.35924	1368428.7	661786.6	0	0	0	0
CRANE	TX	31.4705	-102.35924	1368428.7	661786.6	0	0	0	0
CRANE	TX	31.46875	-102.35867	1368594.8	661146.9	0	0	0	0
CRANE	TX	31.46651	-102.36014	1368121.7	660340.7	0	0	0	0
CRANE	TX	31.4764	-102.33487	1376063.8	663794.7	0	0	0	0
CRANE	TX	31.47466	-102.33429	1376233.2	663158.7	0	0	0	0
CRANE	TX	31.48615	-102.35773	1369003	667469.4	0	0	0	0
CRANE	TX	31.4874	-102.36033	1368201	667938.8	0	0	0	0
CRANE	TX	31.4874	-102.36033	1368201	667938.8	0	0	0	0
CRANE	TX	31.4874	-102.36033	1368201	667938.8	0	0	0	0
CRANE	TX	31.4879	-102.3583	1368836.9	668109.1	0	0	0	0
CRANE	TX	31.48216	-102.35863	1368696.1	666023.5	0	0	0	0
CRANE	TX	31.47667	-102.34155	1373983.4	663930.4	0	0	0	0
CRANE	TX	31.47667	-102.34155	1373983.4	663930.4	0	0	0	0
CRANE	TX	31.47667	-102.34155	1373983.4	663930.4	0	0	0	0
CRANE	TX	31.48566	-102.35977	1368364	667302.8	0	0	0	0
CRANE	TX	31.47716	-102.33952	1374619.4	664097.2	0	0	0	0
CRANE	TX	31.47716	-102.33952	1374619.4	664097.2	0	0	0	0
CRANE	TX	31.47716	-102.33952	1374619.4	664097.2	0	0	0	0
CRANE	TX	31.46601	-102.36218	1367482.5	660170.4	0	0	0	0
CRANE	TX	31.46601	-102.36218	1367482.5	660170.4	0	0	0	0
CRANE	TX	31.48281	-102.3592	1368520	666662.2	0	0	0	0



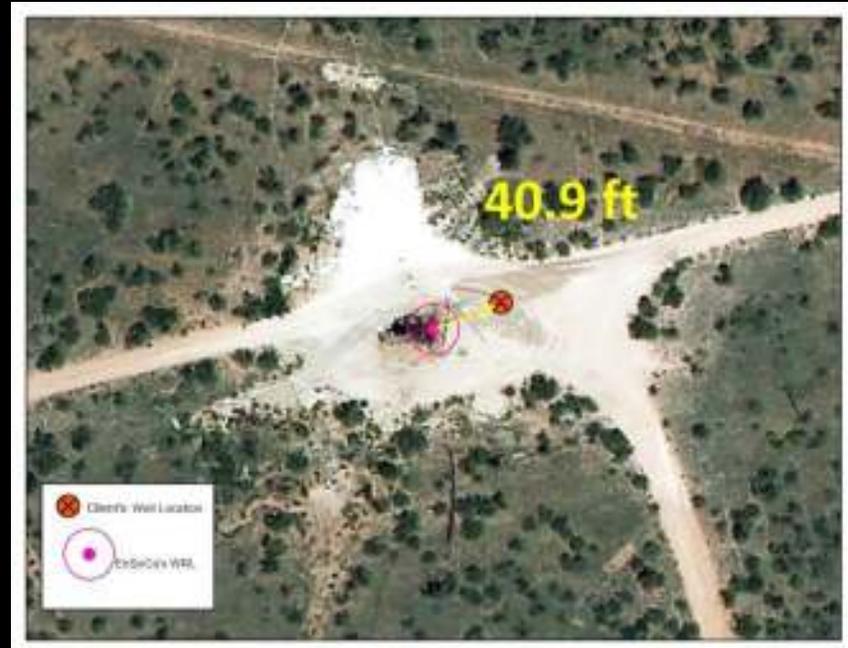
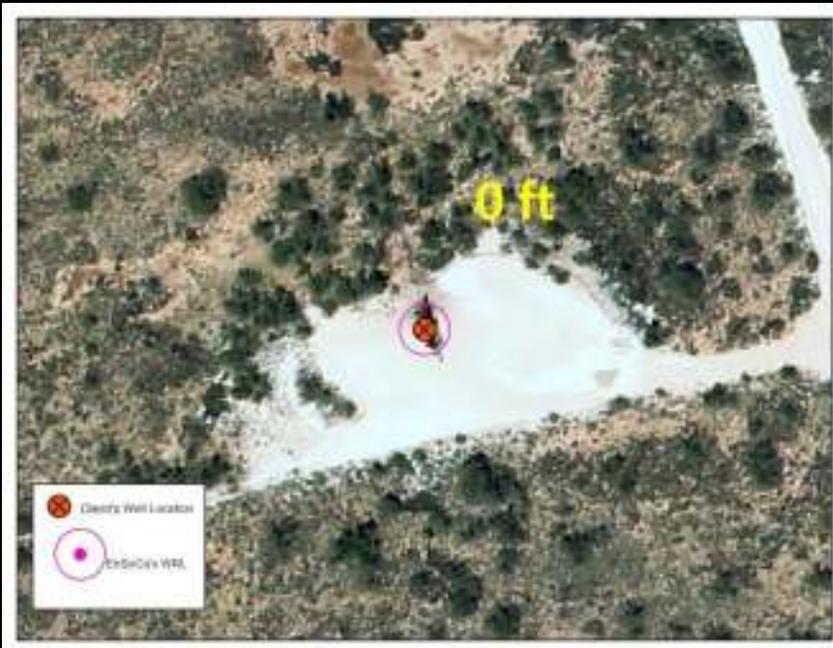
Vision of Truth



Example Offsets

No Movement

26 to 50'



Example Offsets

101 to 200'



Example Offsets (Survey plat comparison)



Example Offsets (Survey plat comparison)



Not All Imagery is Equal



Accuracy Is Critical

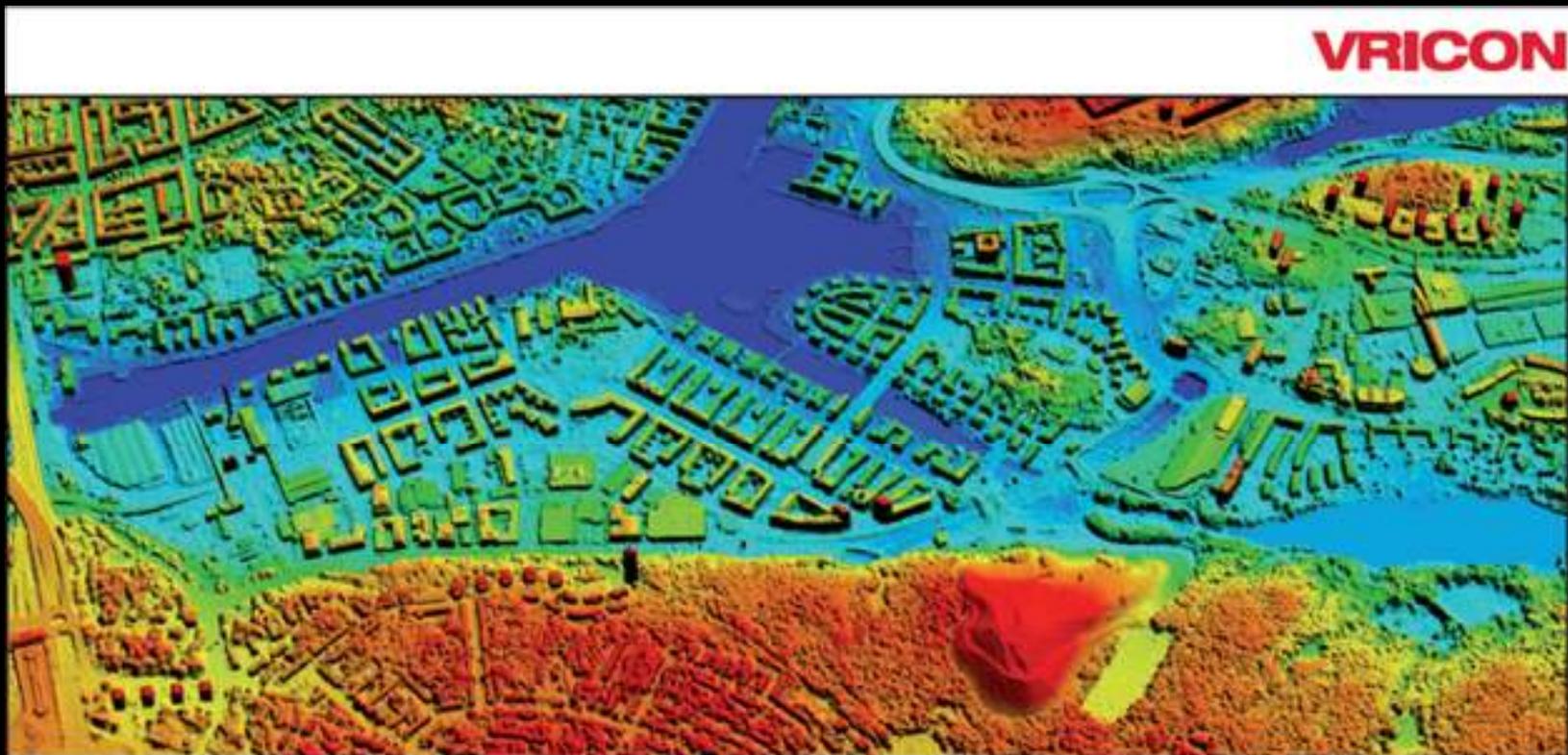
Some Wells Are not Visible In Imagery Mining Scout Cards



WRS COMPLETION REPORT			
COMPLETIONS	42-175-32154-0000	PAGE 1	
PI# 42-T-0002	09/17/86	AXI NO	
STATE	DIST. NO./TAL. COUNTY	WELL CLASS	
TEXAS	02 GOLIAD WILDCAT	WF WF	
SEC. TWP. RGE	BLK #	SURVEY	ARST NO
		BARRERA G	1
AMOCO PROD			
OPERATOR NAME			
1 DUKE RANCH			
WELL NO.	LEASE NAME		
190 GR			API 42-175-32154-0000
OPER. ELEV.	COMM ELEV.	PERMIT OR WELL ID. NO.	
07/23/1986	08/22/1986	ROTARY	D&A
SPUD DATE	COMP. DATE	TYPE TOOL	STATUS
11000	DELTA DRLG	63	
PROL. DEPTH	PROL. FORM	CONTRACTOR	
DTD 11500			FM/TD WILCOX
DRILLER'S T.D.	LOG T.D.	PLUG BACK T.D.	OLD T.D.
			FORM T.D.
LOCATION DESCRIPTION			
(NE/12S-23E-3) 10 MI S COLOGNE, TX			
BARRERA G ARS I			
5650 FWL SC 13325 FSL SUR			
1757 FSL 5/96 PHNEL LSE			
APPROX 1 1/2 MI NW GAFFNEY, SW FLD			
SC 8025 NW GOSE, #7 WELDER HRS, D&A, TD 6317			



New Technology For Elevation Models



Vricon DSM is a global surface model with 0.5m post spacing and 3m absolute accuracy. No ground control points needed. Image: Stockholm, Sweden.

Crowd Sourcing or Big Data Analytics – Combining Technologies for Fast Information







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