

Quantified decision-making

Empowering efficient, scalable and verifiable conservation



We are apublic benefit corporation.

Our mission Create economic forces that drive environmental good.





Upstream Tech Satellite Ensemble

- NASA/USGS -
- European Space Agency (ESA) -
- Planet
- Airbus
- DigitalGlobe -

When combined, these satellites increase revisit time, spatial resolution, spectral frequency



Landsat 7 USGS/NASA

Landsat 8 Sentinel-1A USGS/NASA

ESA

Sentinel-2A/B ESA



MODIS Terra/Agua Dove USGS/NASA Planet



What is machine learning?

And how does it help with conservation?



TRAIN



ESTIMATE



Estimated Quantity

Al makes predictions from remote data sources and trained machine learning models

From historic observation —— To real-time estimation

Location, Date & Time, Observation (Lat/Lng, July 1st 2018 10am, "Dry Soil")

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SCV-00058 Q21/2012 174R-077-1 Q Q32.005 -121.9271 I00 75 All of the bid is in compiques, looks great. Even so the bird response in exts og reat SCV-00058 Q21/2012 174R-077-1 Q Q32.005 -121.9971 I00 75 SC All of the bid is in compiques, looks great. Even so the bird response in exts og reat SCV-00058 Q21/2012 174R-077-1 Q Q32.005 -121.9971 I00 75 SC All of the bid is in compiques, looks great. Even so the bird response in exts og reat SCV-00058 Q21/2012 174R-077-1 I Q32.005 -121.9271 91.00 75 Q2 All of the bid is in compiques, looks great. Even so the bird response in exts og reat SCV-00058 Q21/2012 174R-077-1 I Q3.005 121.9271 91.00 75 Q2 All of the bid is in compiques, looks great. Even so the bird response in ext og great SCV-00058 Q21/2012 174R-077-1 I Q3.005 121.9271 91.00 75 Q2 Couple of checks where water comes in an edee put over all looks GRAT. Couple glocks d'WTB and Couple of checks where water comes i	scvName	visitDate	stkUnique	stkNum	stkLat	stkLong	pComp_techEstm	pComp_stkDepths	stkDepthInches	techNotes4EntireBid
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SCV-00068 V/1/007 V/14707 V/147077	SCV-000858	8/21/2017	17-FR-077 - 3	3	39.2019	-121.95914	100	75	5	All of the bid is in compiqnce, looks great. Even so the bird response is not so great
SCV-00088 Q2/1201 IV-R-077-1 I SQ.2029 IV-R-077-2	SCV-000858	8/21/2017	17-FR-077 - 2	2	39.20296	-121.96549	100	75	4	All of the bid is in compiqnee, looks great. Even so the bird response is not so great
SCV-00080 Q2/42012 12-FR-077-4 4 9.2005 121.9271 9.0 75 3 Couple of necks where water comes in an edeep but over all looks GREAT. Couple glocks of WFB and SCV-00080 SCV-00080 Q2/42012 12-FR-077-1 3 3 3.00.10 12.19.921 90 75 7 Couple of necks where water comes in an edeep but over all looks GREAT. Couple glocks of WFB and SCV-00080 Q2/42012 12-FR-077-1 2 3.2025 12.19.921 90 75 3 Couple of necks where water comes in an edeep but over all looks GREAT. Couple glocks of WFB and SCV-00080 9/24/012 12-FR-077-1 1 3.2025 12.19.921 90 75 2 Couple of necks where water comes in an edee put over all looks GREAT. Couple glocks of WFB and SCV-00080 9/2017 17-FR-077-4 4 3.2025 12.19.921 90 75 2 Couple of necks where water comes in an edee put over all looks GREAT. Couple glocks of WFB and SCV-00080 9/2017 17-FR-077-4 4 3.2025 12.19.921 95 100 11 Looks really good, everything from pudded mud flats to 4' standing waterStill nit a ten of buts SCV-00080 9/2017 17-FR-077-3	SCV-000858	8/21/2017	17-FR-077 - 1	1	39.20629	-121.9669	100	75	2	All of the bid is in compiqnce, looks great. Even so the bird response is not so great
SCV-00060 V/4/017 17-Re-07-2 3 32.010 -11.9914 90 75 7 Couple of checks where water comes in an edge but over all looks GREAT. Couple glocks of WTB and SCV-00068 SCV-00068 V/2/017 17-Re-07-1 1 32.025 -121.9954 90 75 3 Couple of checks where water comes in an edge but over all looks GREAT. Couple glocks of WTB and SCV-00068 V/2/017 17-Re-07-1 1 32.025 -121.9951 95 2 Couple of checks where water comes in an edge but over all looks GREAT. Couple glocks of WTB and SCV-00068 9/2/017 17-Re-07-4 4 32.026 -121.9951 95 100 E1 Looks really good, everything from puddled mud flats to 4" standing waterStill nit a tom of burds SCV-00068 9/2/017 17-Re-07-4 4 32.0205 -121.9951 95 100 E1 Looks really good, everything from puddled mud flats to 4" standing waterStill nit a tom of burds SCV-00068 9/2/017 17-Re-07-3 3 3 92.01 95 100 4 Looks really good, everything from puddled mud flats to 4" standing water	SCV-000860	8/24/2017	17-FR-077 - 4	4	39.20085	-121.95271	90	75	3	Couple of checks where water comes in are deep but over all looks GREAT. Couple glocks of WFIB and
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Upstream Use Case Examples



Agricultural assessments

Large-scale automated geospatial tasks such as field delineation, irrigation estimates, and detection of field -level management practices.



Basin optimizations

Accurately forecast water quantity and quality so that stakeholders across a basin (hydropower, agriculture, nature) can be managed proactively and as an interconnected system.



Environmental monitoring

Assess baseline conditions and to monitor project locations for expected outcomes such as forest density or native species recruitment.



Agricultural Assessments

Conduct rapid, accurate, and cost-effective assessments of agricultural landscapes to understand field-level management practices and optimize environmental outcomes.





Use case Water Trading



Providing ongoing irrigation monitoring, 15 year irrigation intensity history and digitized water rights database to inform the Columbia Basin Water Transactions Program.





Use case Holistic Watershed Management



Connecting the dots between agricultural management practices and the surrounding watershed, including wetlands and water bodies.





Use case BMPs for Cotton



Setting informed baselines, monitoring field -level management practices, and tracking adoption and progress over time.





Use case Flow Forecast

Predicts with high accuracy in ungauged basins. In fact, its predictions are more accurate in out-of-sample basins than a well calibrated traditional hydrology model is on gauged, in-sample basins!

Informs:

- Agricultural planning
- Hydropower optimization
- Proactive management of environmental flows and riparian habitats





The Upstream Tech Dashboard

A web-based, up-to-date, collaborative platform





IRRIGATION INTENSITY, 2012-2017 AVERAGE



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Q Filter items (3688 items)

	Сгор Туре	Irrigation Type	Area	Irr Avg 2012 - 2017	Irr 2017	Irr 2016	Irr 2015	Irr 2014	Irr 2013	Irr 2012	Irr 2011	Irr 2010	Irr 2009	Irr 2008
1	Grasslarid/Pasture	Pressurized	16.33 acres	High	High	High	High	High	High	Medium	Medium	Low	Medium	Low
2	Grassland/Pasture	Notirrigated	6.85 acres	Low	Low	None	Medium	None	Medium	Low	Low	Medium	Low	Low
3	Grassland/Pasture	Notirrigated	4.24 acres	Low	Low	Low	Medium	Low	Medium	Low	Low	Medium	Low	Low
4	Grassland/Pasture	Not irrigated	7.61 acres	Low	Low	Low	Medium	Low	High	Low	Low	Low	Low	None
5	Grassland/Pasture	Pressurized	2.31 acres	Medium	Medium	Medium	Medium	Medium	High	Medium	Medium	Low	Medium	Medium
6	Grassland/Pasture	Pressurized	3.91 acres	Medium	Medium	Low	Medium	Medium	High	Medium	Medium	Low	Low	Low
7	Grassland/Pasture	Pressurized	2.26 acres	Medium	Medium	Low	Medium	High	Medium	None	Medium	None	Low	None
8	Grassland/Pasture	Pressurized	2.76 acres	Medium	Medium	Medium	High	Medium	High	Medium	Medium	Low	Low	Low
9	Grassland/Pasture	Pressurized	6,68 acres	Low	Medium	Low	Medium	Medium	Medium	None	Medium	Low	None	None
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Let's work together!

Contact mejessie@upstream.tech Or visit our website at upstream.tech

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