Workin piepa · In-house review | v1.0 | 2026-11-20

How cloud cover affect di way wi test software weh classify hurricane damage inna Dominica

A parish-by-parish check a di 2017 Hurricane Maria damage map

Adrian Dunkley | info@caribbeanaiassociation.com

Wa di study find

A satellite map can hide gaps inna di local evidence. Wi use di count fi all ten parish from di map weh UNOSAT an Copernicus put out inna October 2017. Wi look pon how cloud affect di reference data fi software weh read image. Di picture dem cover 37,368 outta 38,534 structure pon di map. Outta di 1,166 weh outside di clear area, 636 deh inna Saint Patrick. If wi keep di visible label dem fixed, di share weh coulda get a possible-damage mark across di island run from 73.46% to 76.49%. Fi Saint Patrick, di gap between di two limit dem a 13.34 percentage point. Dem limit ya apply to di map label. Somebody haffi inspect di building fi establish di actual damage. [1]

Weh di risorch a aks?

How much di building dem weh cloud hide coulda change di share weh get a damage mark? Which parish woulda feel di gap most when wi test software weh classify image?

Data an metad

Fi each parish, wi tek di total structure count, di visible count an di possible-damage count from di 18 October 2017 map. UNOSAT join up fi dem reading wid Copernicus reading a image from different date. Each outline stand fi one mapped structure. Fi dis check, a visible structure either have a possible-damage mark or it nuh have one. Wi nuh know which label di hidden structure dem woulda get. [1]

Mek N stand fi all di structure dem pon di map, V fi how much visible an A fi how much get mark. A/V give di marked share among di visible one dem. Fi di full list, di limit dem a A/N an (A + N − V)/N. Di first limit assume none a di hidden structure dem get mark. Di next one assume all a dem get mark. Wi add up di count dem before wi work out di island limit. Wi never assume weh di damage deh under di cloud.

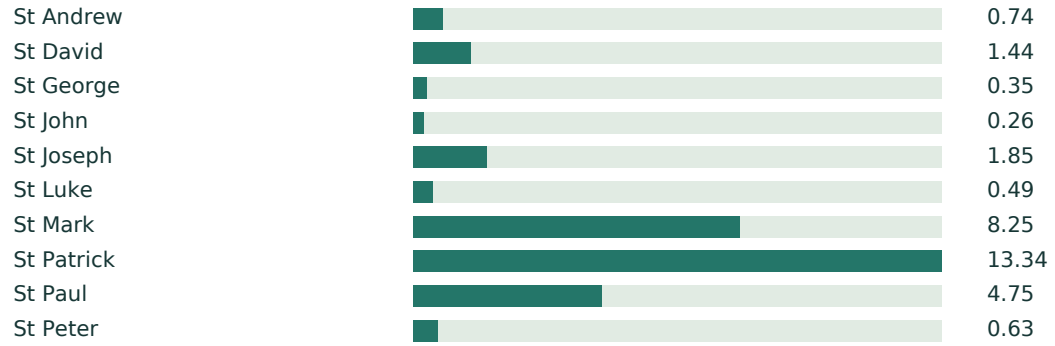
Rizolt dem

Di map flag 28,309 outta 37,368 visible structure. If software mark every visible one, it woulda agree wid di map 75.76% a di time. It woulda miss all 9,059 visible structure weh nuh have a damage mark. Wi can calculate dat reference score widout training a image model. [1]

Saint Patrick have 54.55% a all di footprint dem weh cloud hide. Outta di visible structure dem inna dat parish, 72.99% get mark. Fi di whole parish list, di limit dem a 63.26% an 76.59%. Saint Mark have di second widest gap, 8.25 point. Saint John have di narrowest, 0.26 point. Round off each end separate an di gap weh show can shift by 0.01 point. [1]

Share a mapped structure weh cloud hide

% a all di mapped structure



Each parish use fi it own mapped structure count as di denominator. Di same number give di width a di possible-damage interval inna percentage point. Source [1].

Wa di rizolt mean

When a team test a classifier, dem shoulda show how much structure visible inna each parish an give di error dem separate fi di visible structure weh mark an di one dem weh nuh mark. Software can get a high score by calling damage everywhere. Fi give a hidden structure a reference label, di reviewer need one more image or a visit pon di ground. Di xBD study draw a difference between weh satellite picture can show an weh a field inspection can establish. [2]

Limit a di study

Fi calculate di limit, wi tek di visible label dem an di 2017 list as dem stand. Di calculation nuh cover missing building, map mistake, different image date or damage weh deh under a roof. When UNOSAT put out di map, di assessment did preliminary an dem never verify it pon di ground. Di parish total dem nuh contain a model prediction fi each building. Dem cyaan tell how sensitive a model is or weh happen to any one building. [1]

Run di analysis agen

Tek di three count dem fi each parish from di table inna [1].

Subtract di visible count from di mapped count fi get di hidden count. Divide by di mapped count an multiply by 100 fi get di chart value.

Fi di lower limit, divide di flagged count by di mapped count. Fi di upper limit, add di hidden count to di top number. Do it again wid di column total dem.

Data tiebl

Parish	Structure pon di map	Visible structure	Structure wid possible-damage mark
Saint Andrew	6210	6164	5505
Saint David	3967	3910	3357
Saint George	8788	8757	5691
Saint John	3398	3389	2246
Saint Joseph	4010	3936	3269
Saint Luke	820	816	590
Saint Mark	1043	957	597
Saint Patrick	4768	4132	3016
Saint Paul	4570	4353	3218
Saint Peter	960	954	820

Suos dem

[1] UNITAR–UNOSAT and Copernicus (2017). Buildings Damage Assessment & Related Density in Dominica: Analysis by Parish, 18 October, version 1.0. Parish table.

[2] Gupta et al. (2019). Creating xBD: A Dataset for Assessing Building Damage from Satellite Imagery. CVPR Workshops.

Weh di data come fram

UNITAR–UNOSAT / Copernicus, 18 October 2017. Parish totals; CAIA calculations. Source map: CC BY-NC 3.0.