Supplement for “Mapping Burned Areas in Tropical Forests Using a Novel Machine Learning framework”

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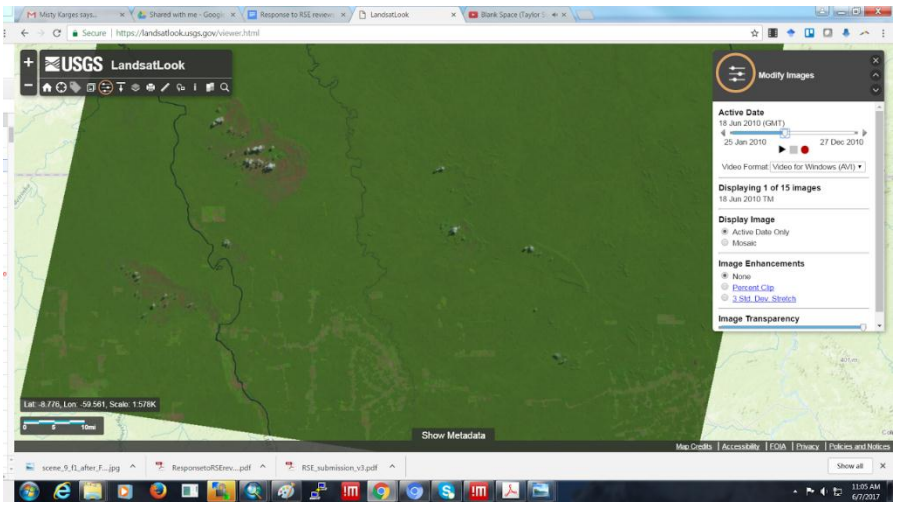
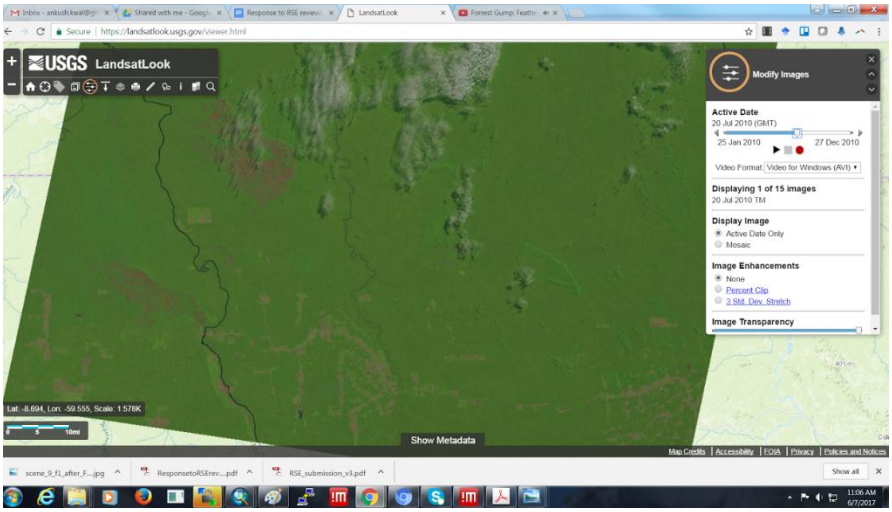
1. Landsat based Reference Maps

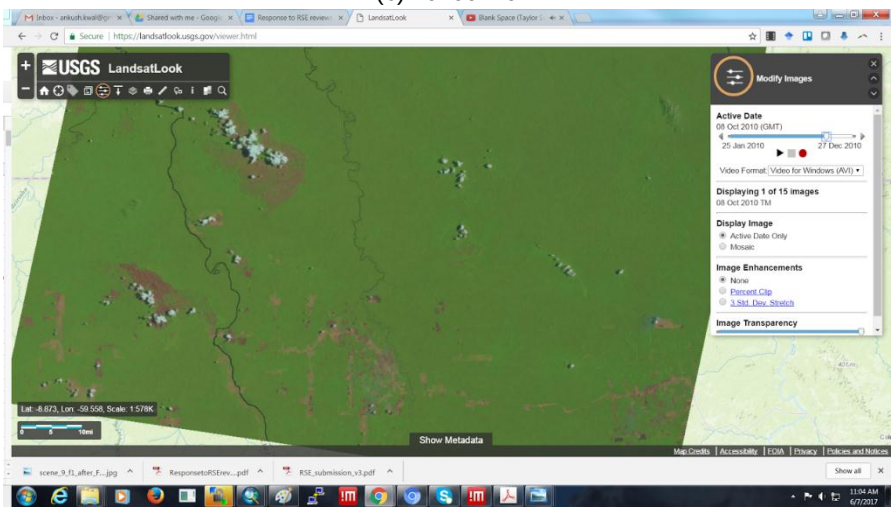
Figure 1 to 17 show pre (panel (a)) and post images (panel (c)) for each reference map reported in Table 2. In some cases, the gap between pre and post images is more than 6 months which is generally a long time in tropics as forests could recover in matter of weeks. Even though the gap is large for some cases, the post images are still within 100 days of the fire event which ensures that the reference maps can be safely used for evaluation. In order to find relatively cloud free images for some cases, we had to go in the previous year of the same season which led to the large gap between pre and post images. To ensure the validity of post images used for creating reference maps, we looked for a Landsat image (panel (b)) within 100 days of the post image that show no fire activity.



(a) 20100618

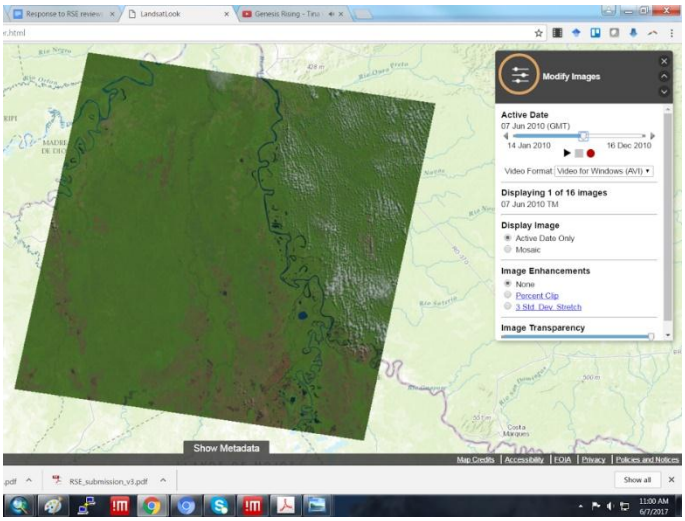


(b) 20100720

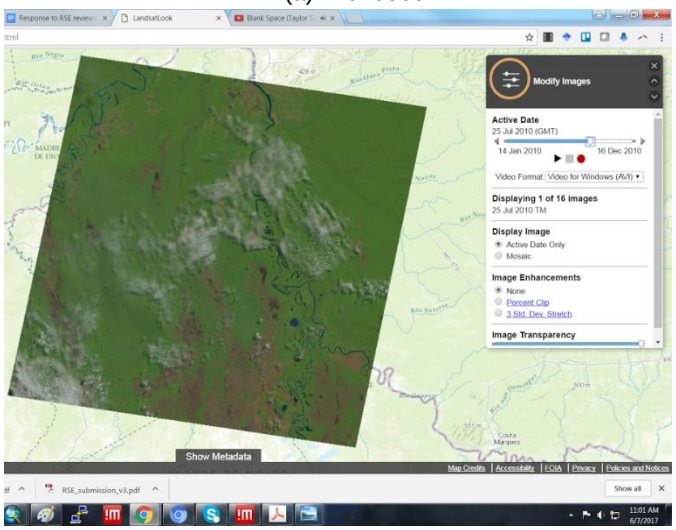


(c) 20101008

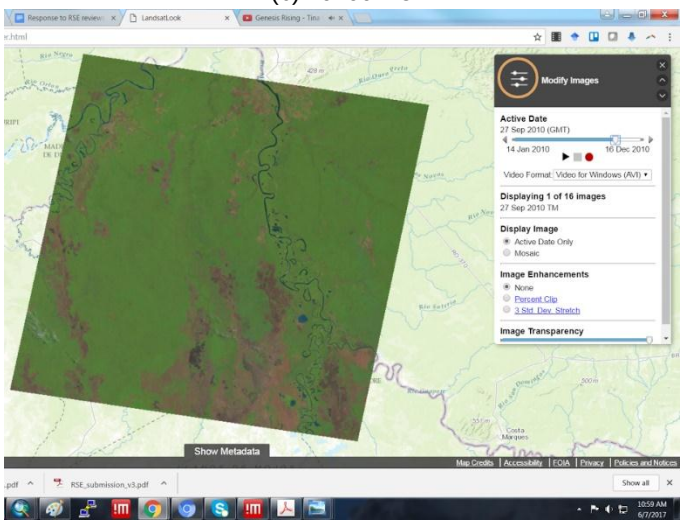
Figure S1: ID 1 and 2



(a) 20100607

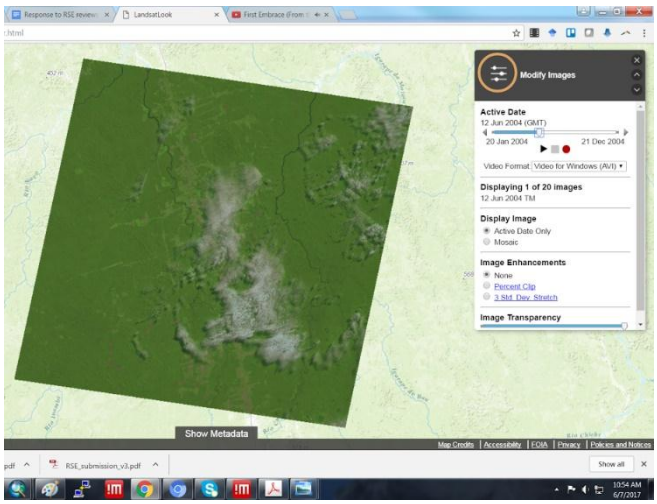


(b) 20100725

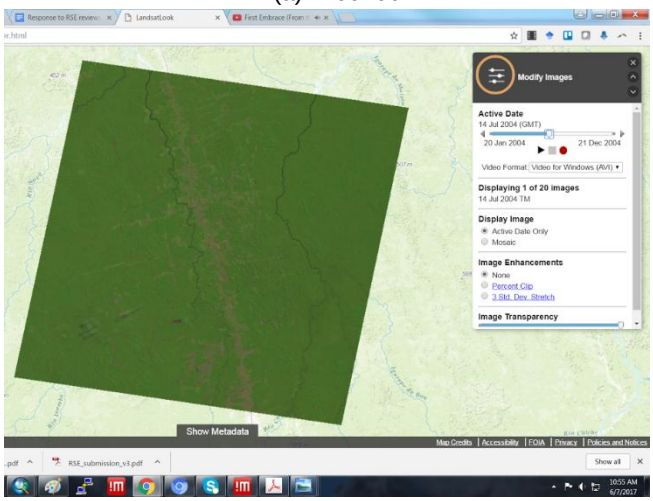


(c) 20100927

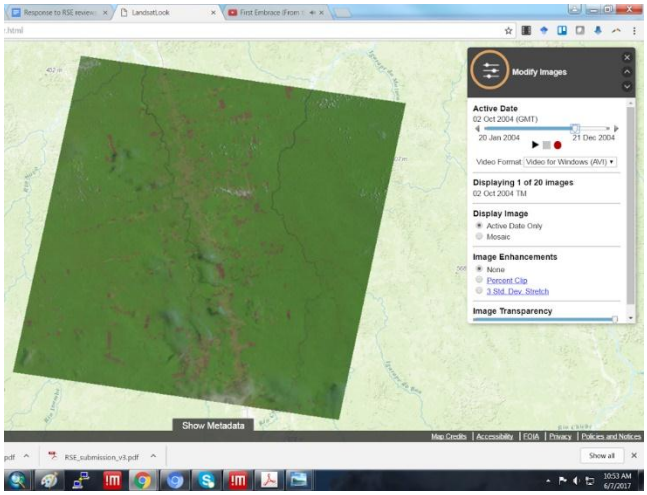
Figure S2: ID 3



(a) 20040612



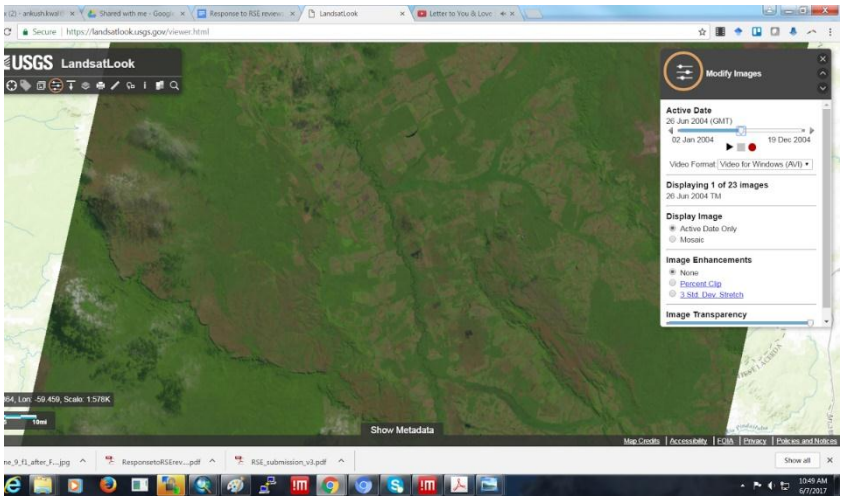
(b) 20040714



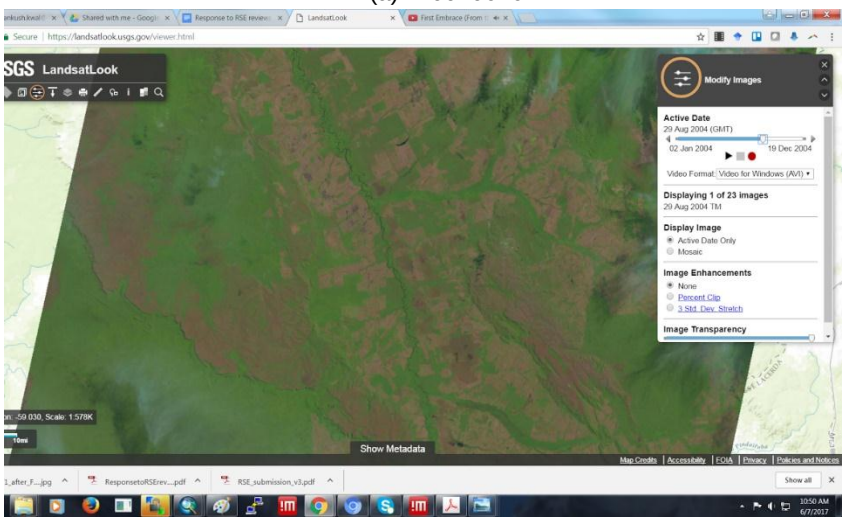
(c) 20041002

Figure S3: ID 4

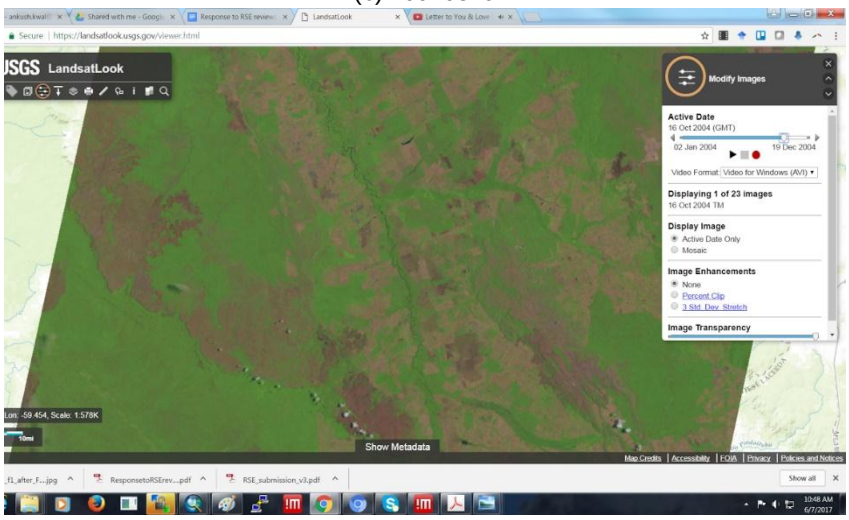
(Note: Ideally, image in (b) could have been used as pre-image as it is cloud free and more closer to the post image but was accidently not selected)



(a) 20040626

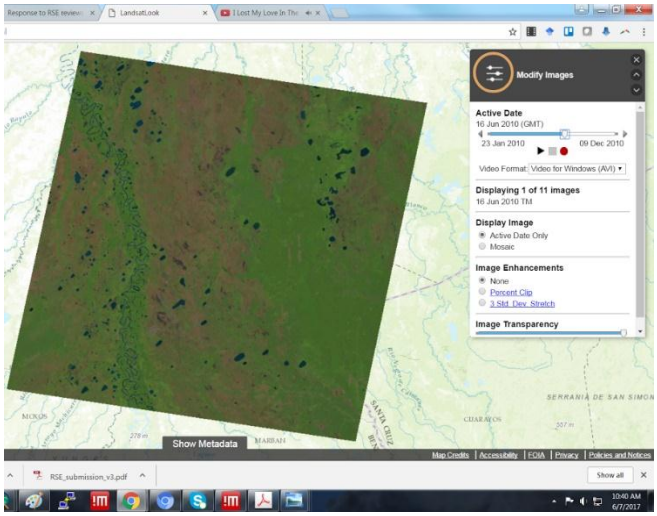


(b) 20040829



(c) 20041016

Figure S4: ID 5



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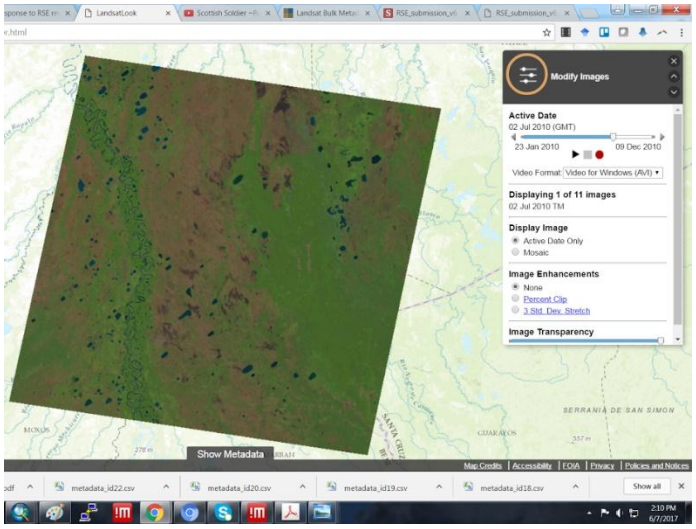

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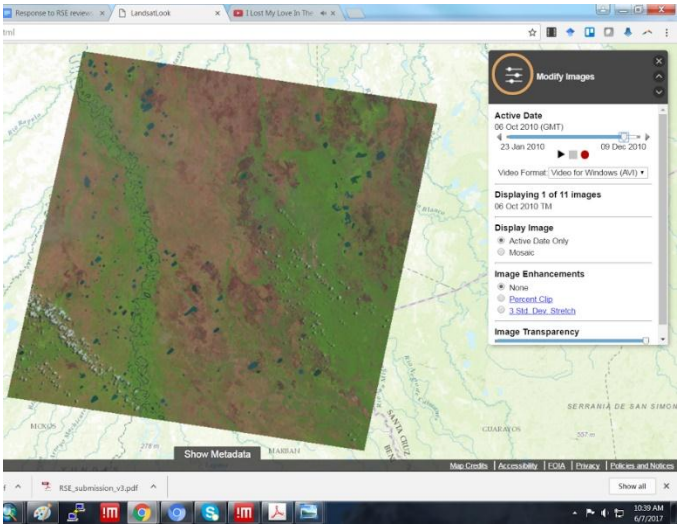
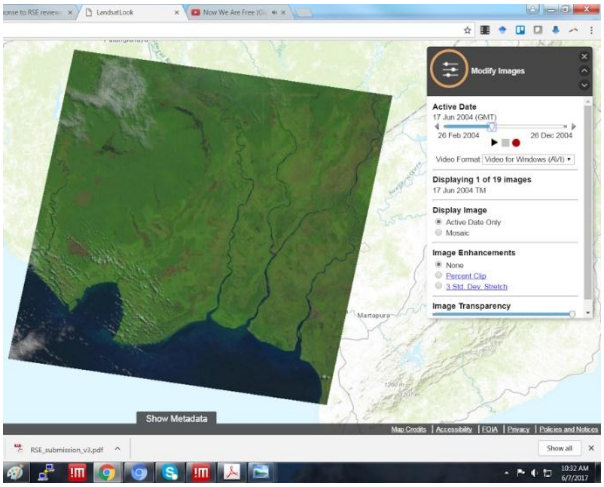


(c) 20101006

Figure S5: ID 6



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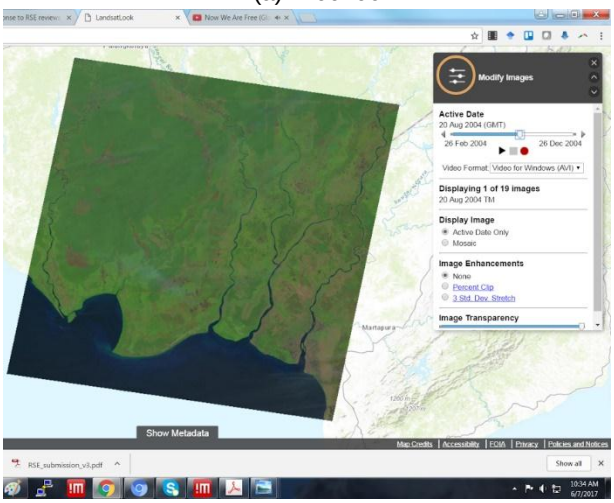

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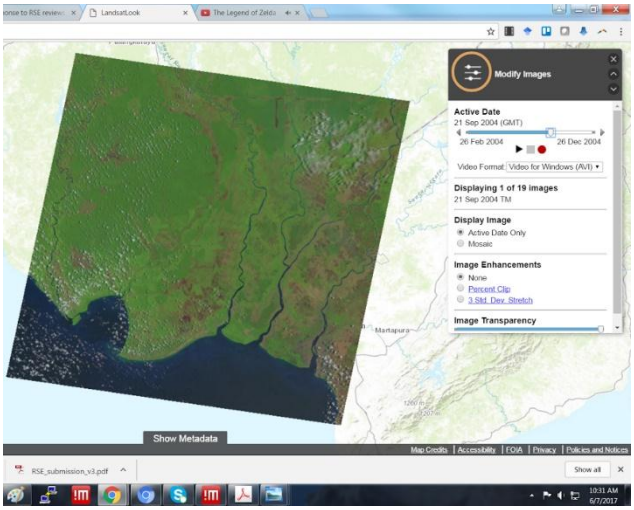
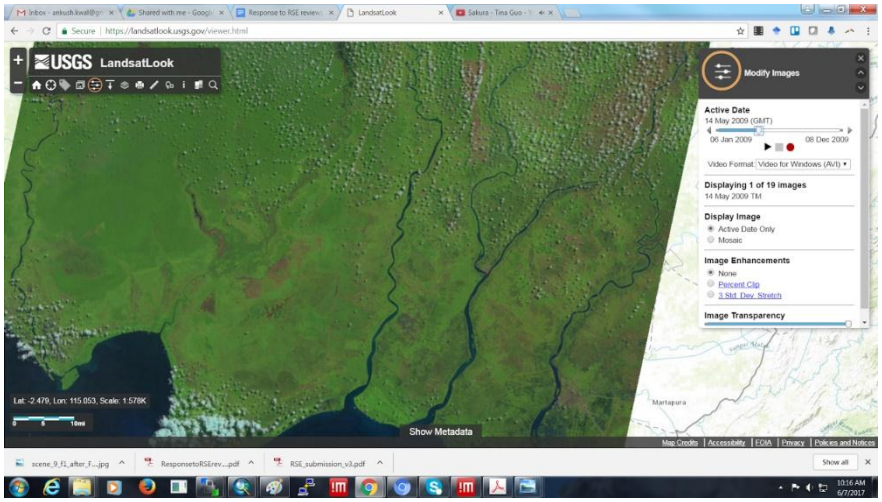


(c) 20040921

Figure S6: ID 7



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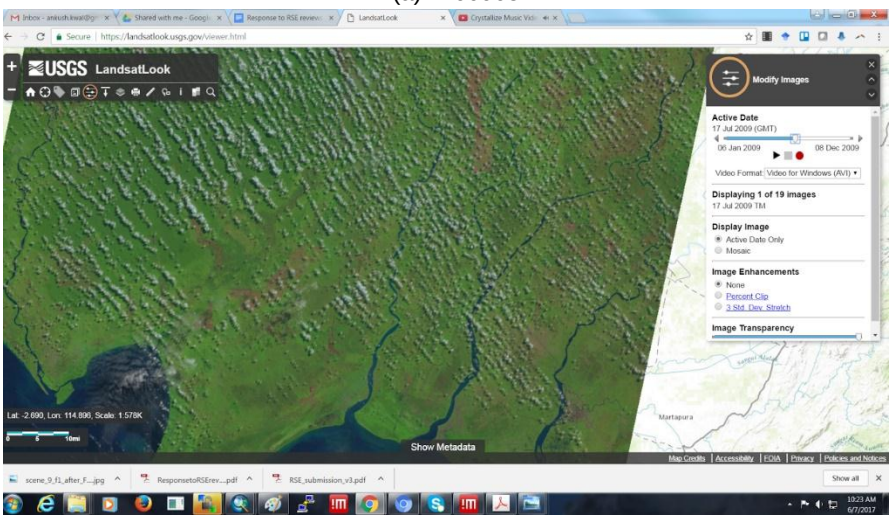
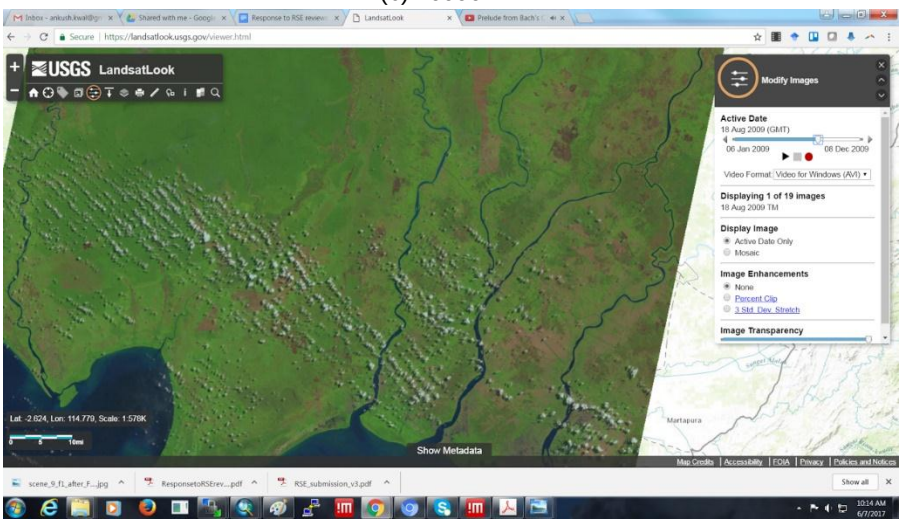
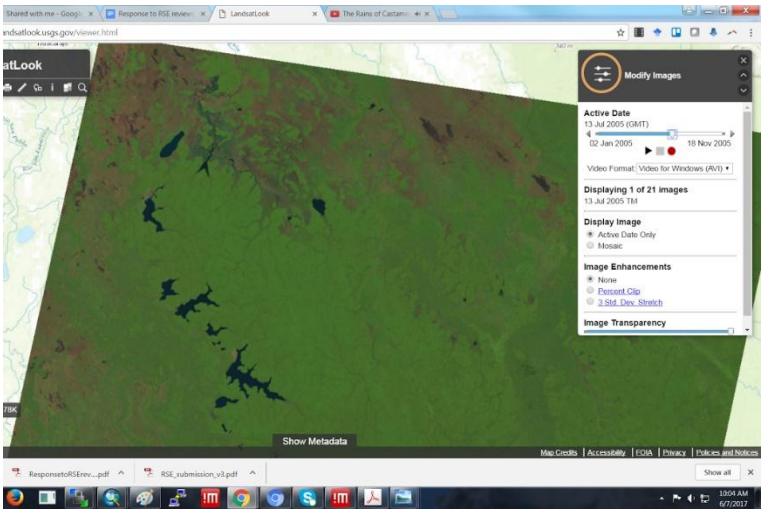


(b) 20090717

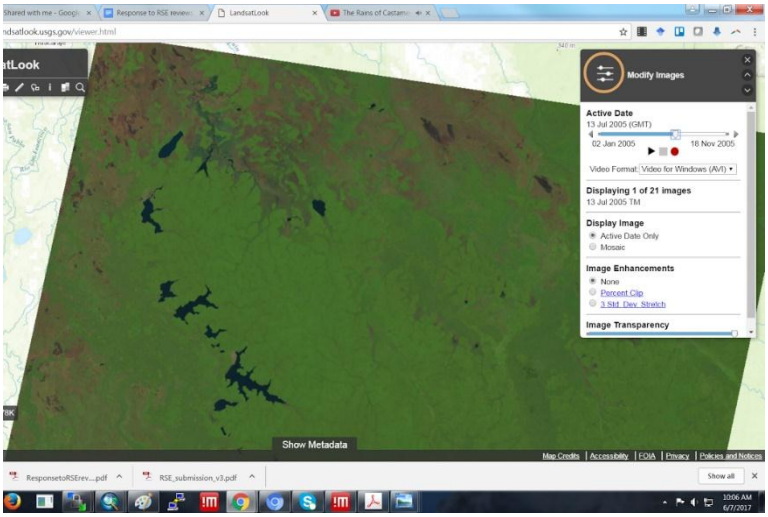


(c) 20090818

Figure S7: ID 8



(a) 20050713



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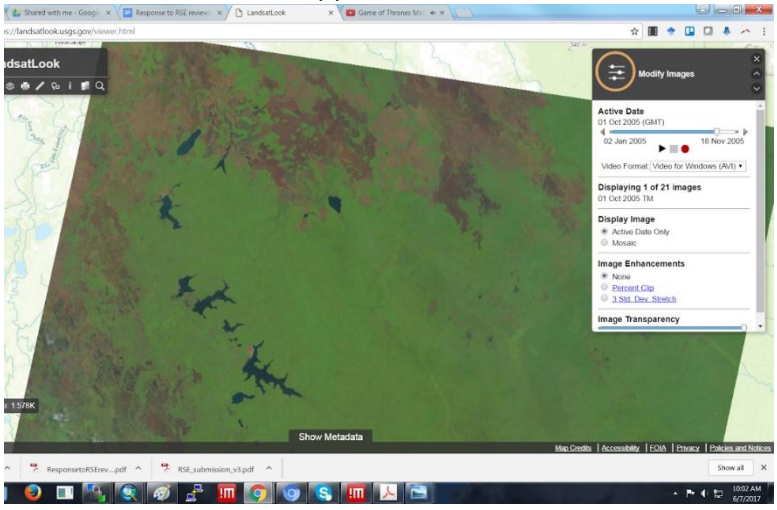
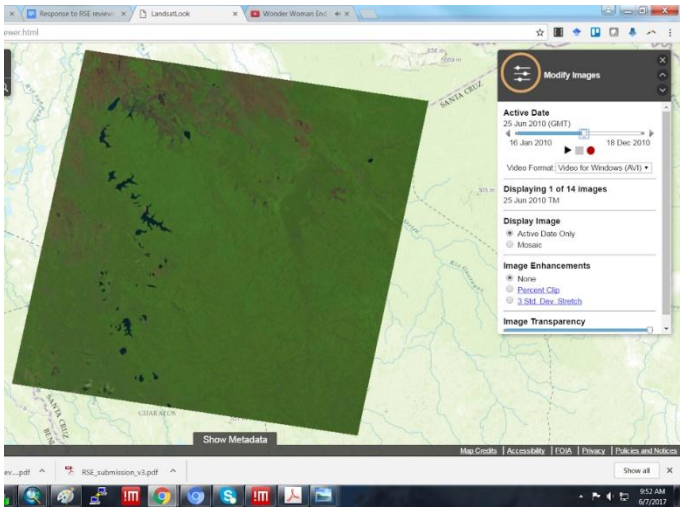
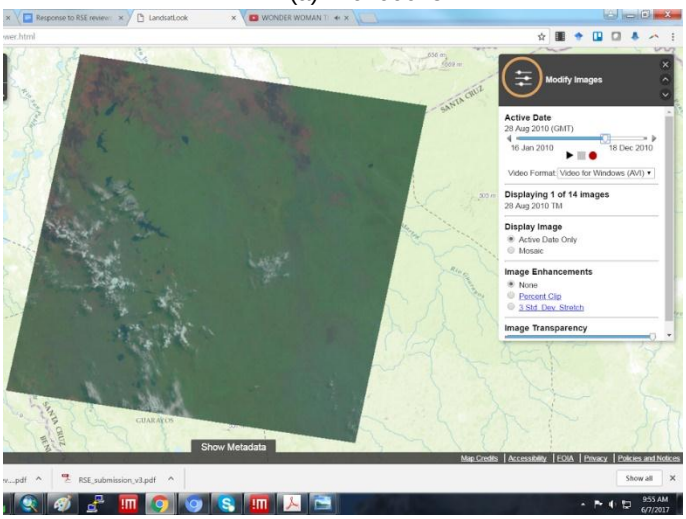


(c) 20051001

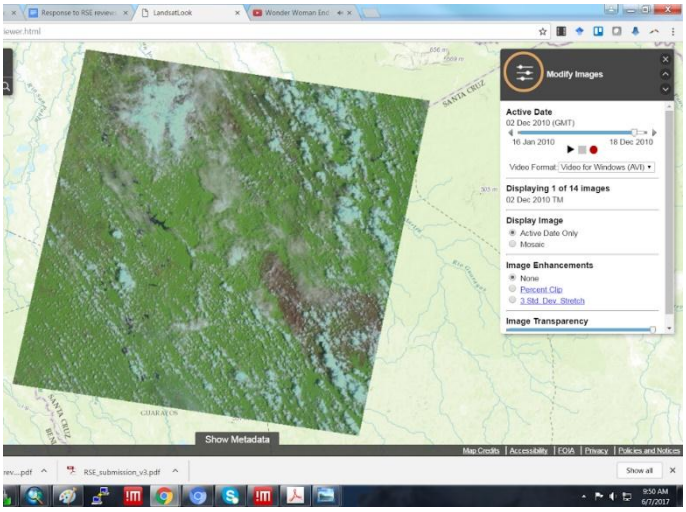
Figure S8: ID 9



(a) 20100625

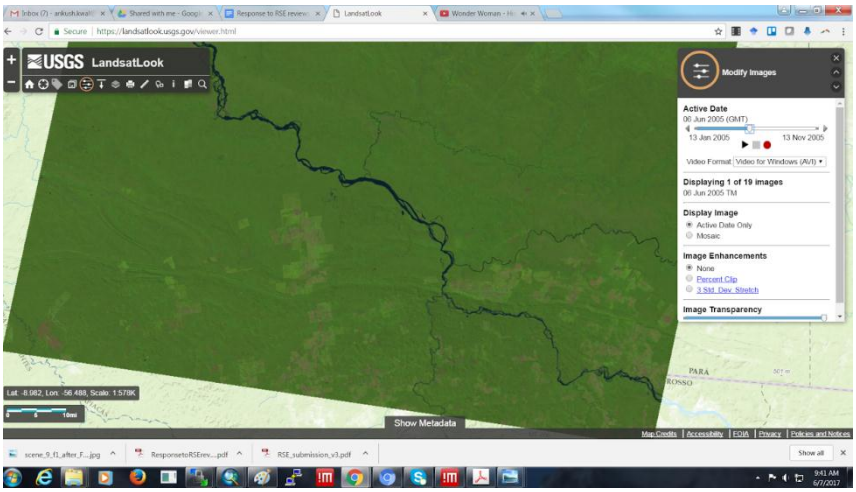


(b) 20100825

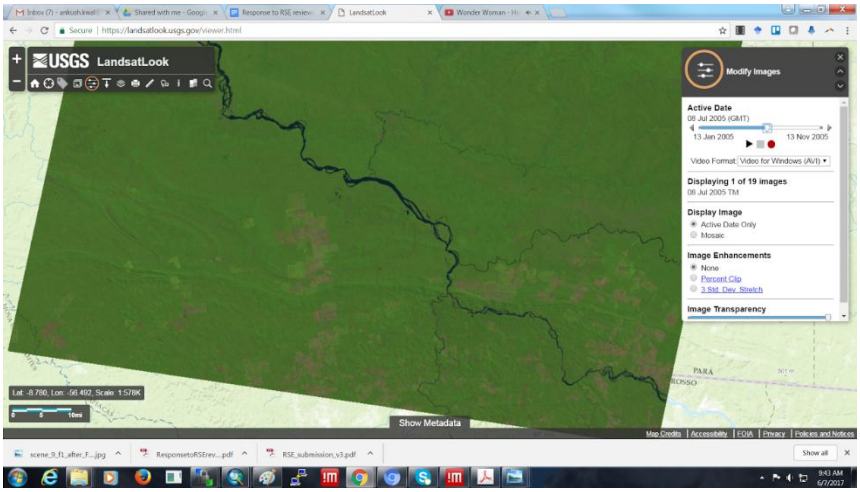


(c) 20101202

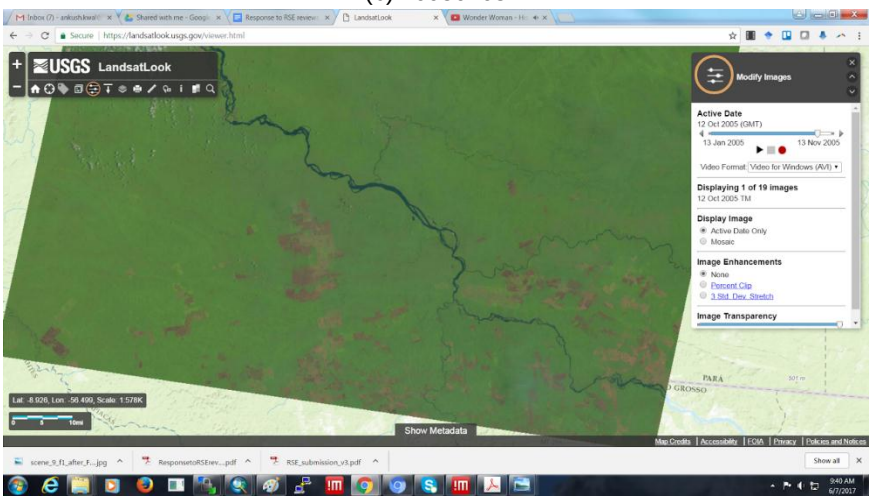
Figure S9: ID 10



(a) 20050606

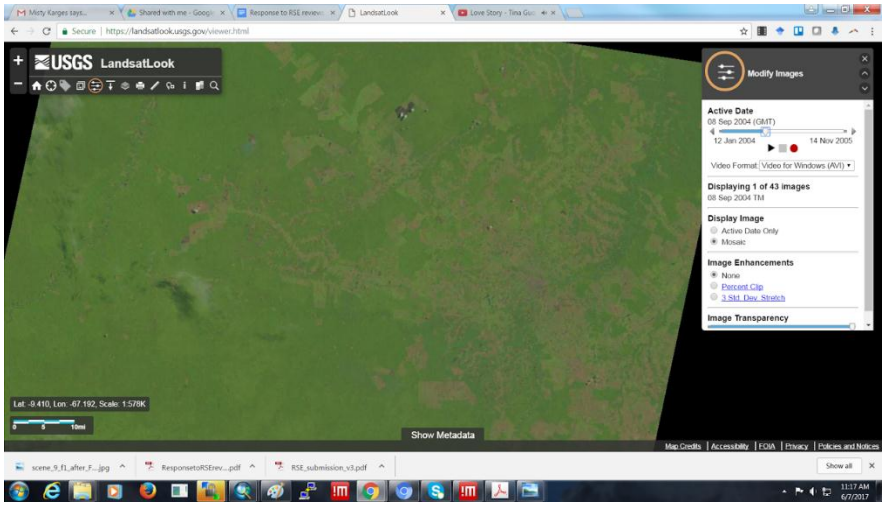


(b) 20050708



(c) 20051012

Figure S10: ID 11



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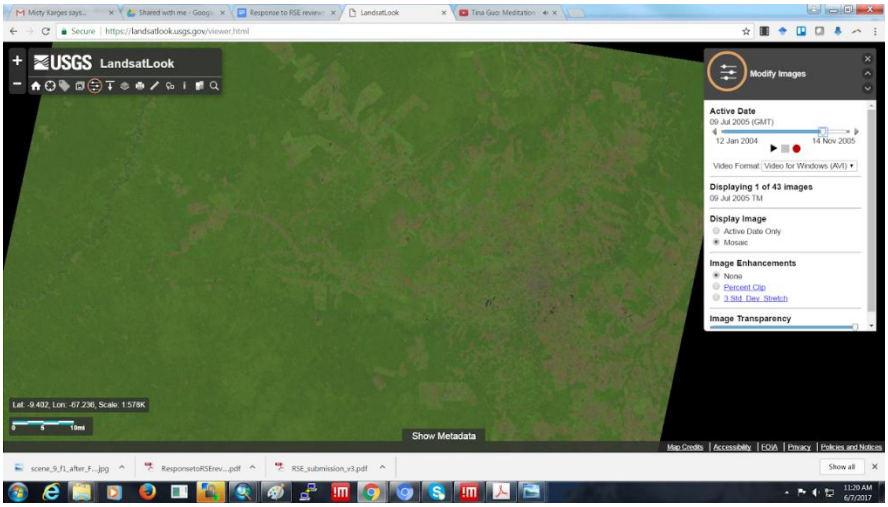
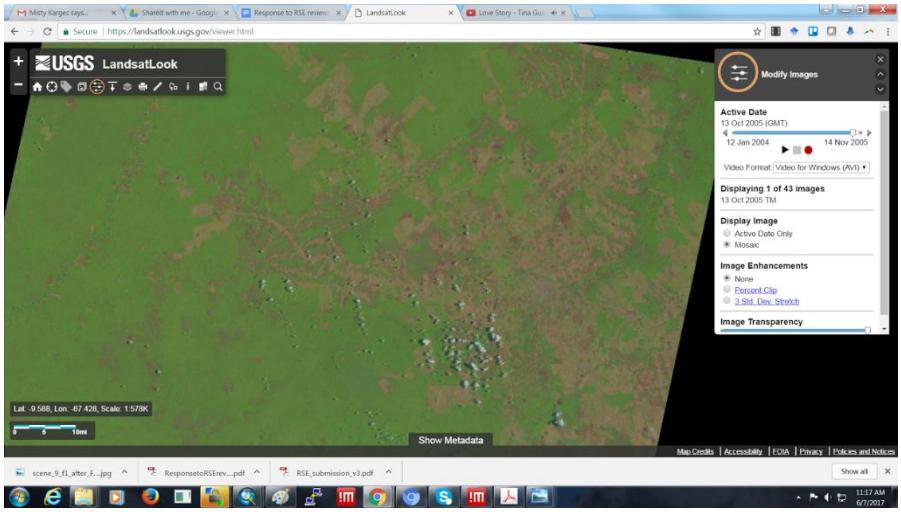


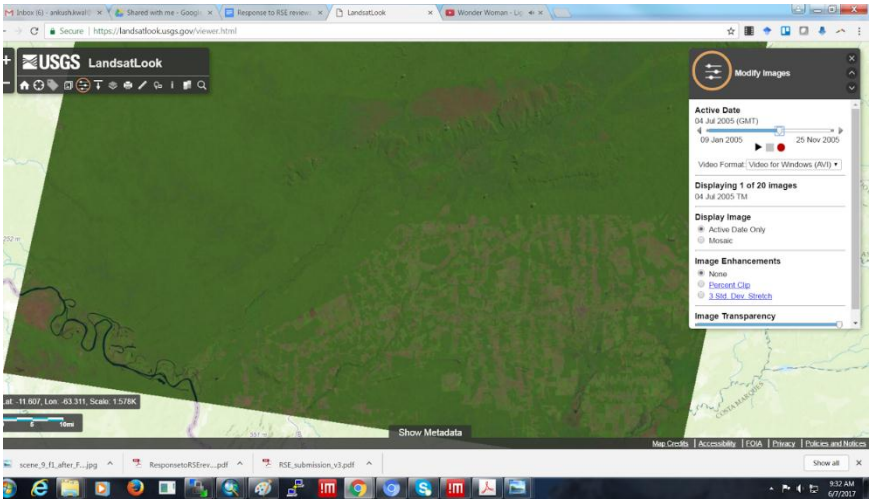
(b) 20050709



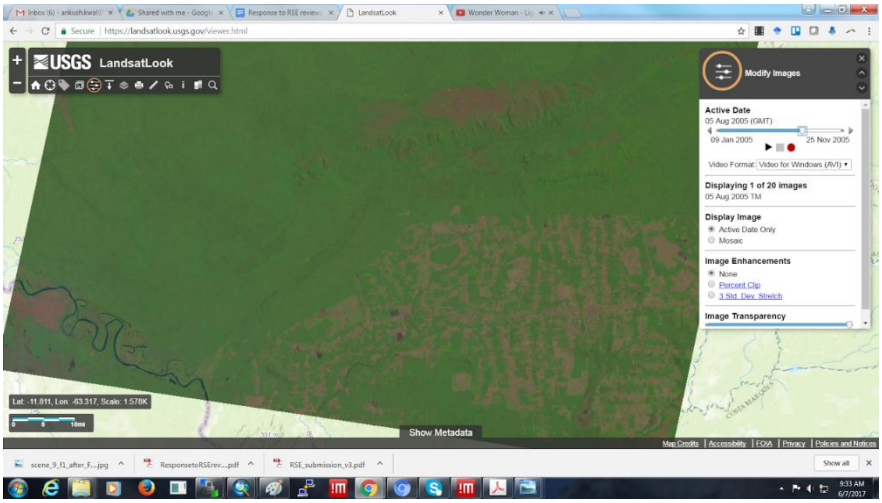
(c) 20051013

Figure S11: ID 12 and 13.

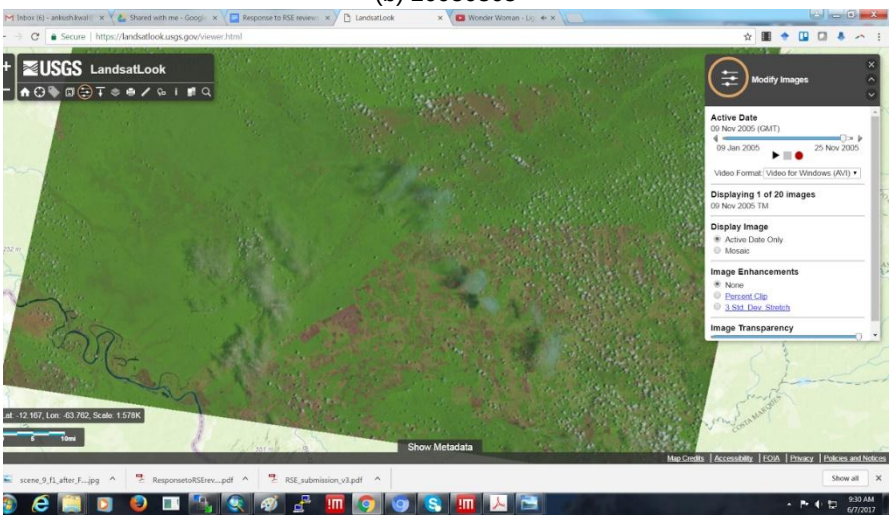
(Note: Ideally, image in (b) could have been used as pre-image as it is cloud free and within 100 days of the post image but was accidently not selected)



(a) 20050704

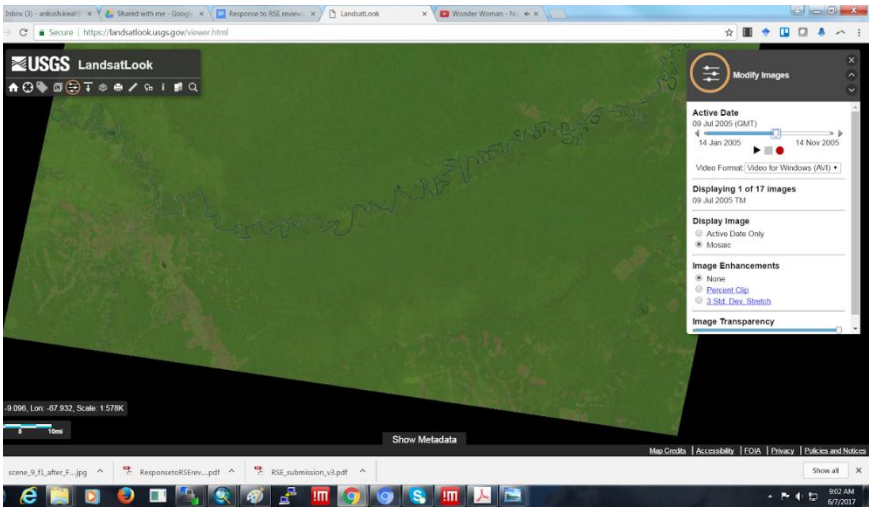


(b) 20050805

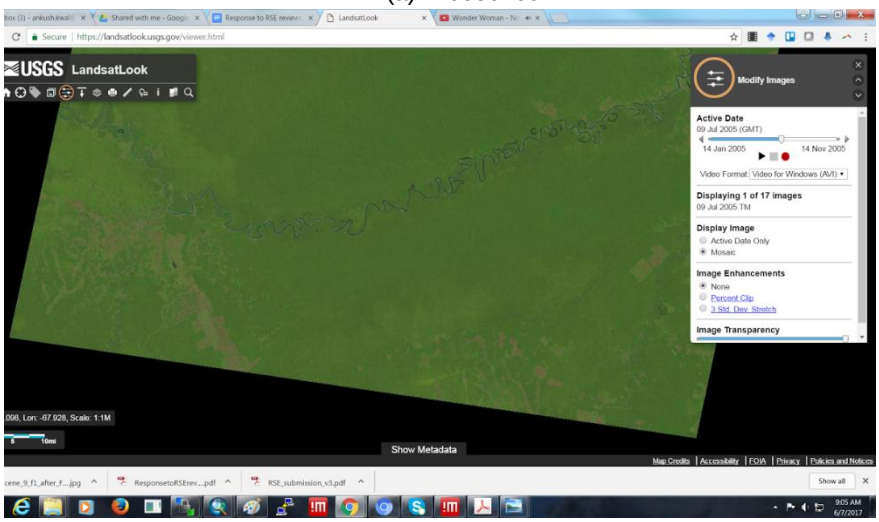


(c) 20051109

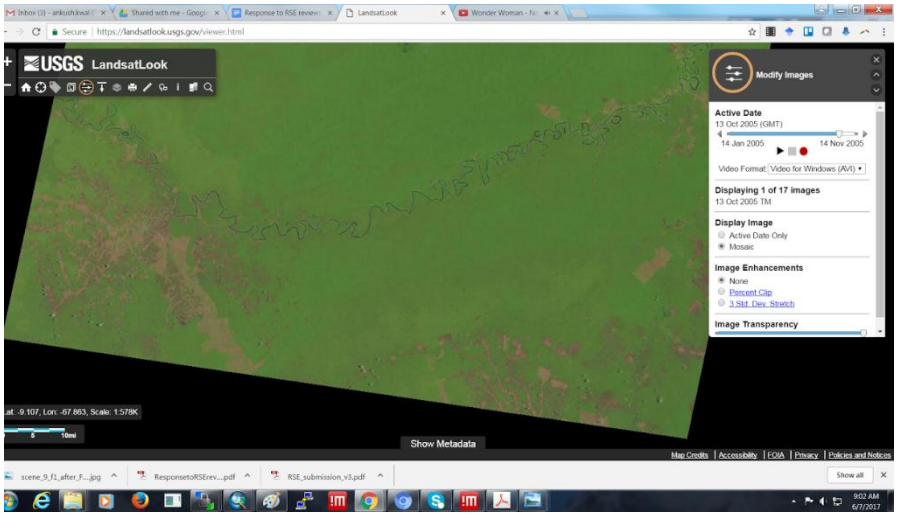
Figure S12: ID 14



(a) 20050709

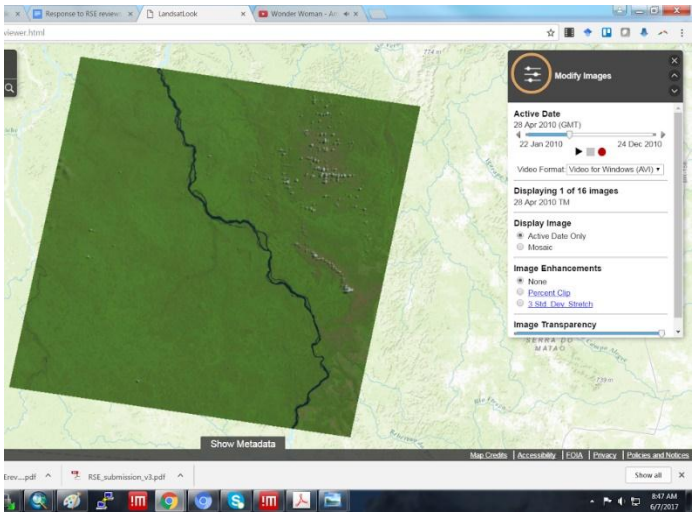


(b) 20050709

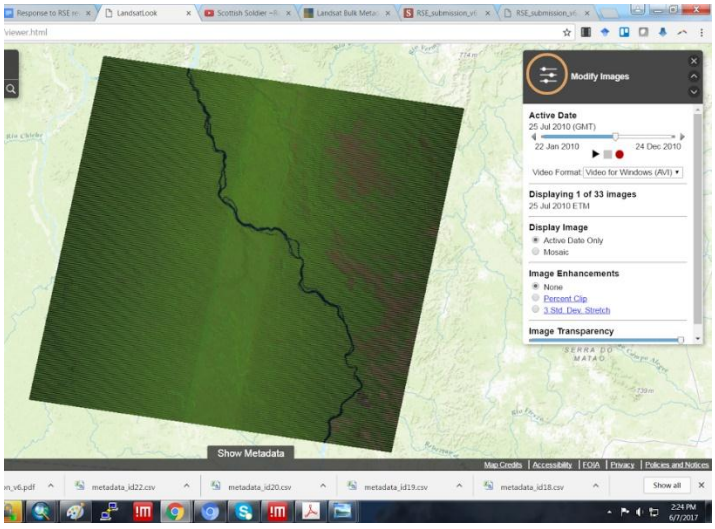


(c) 20051013

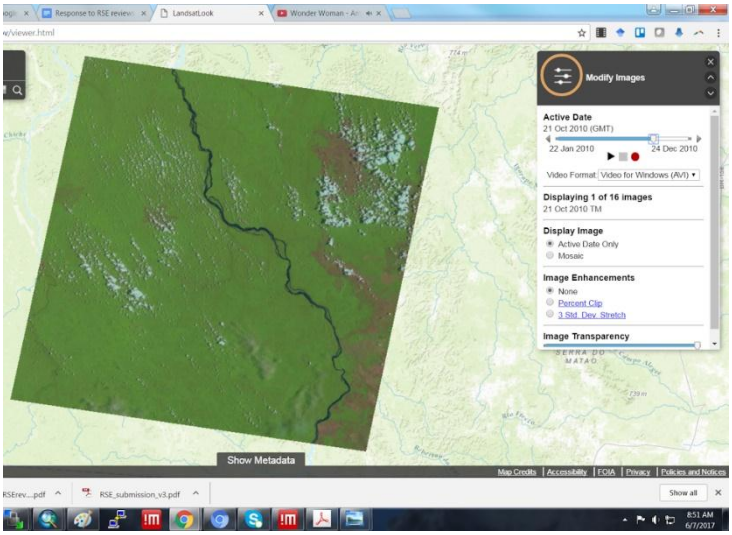
Figure S13: ID 15



(a) 20100428

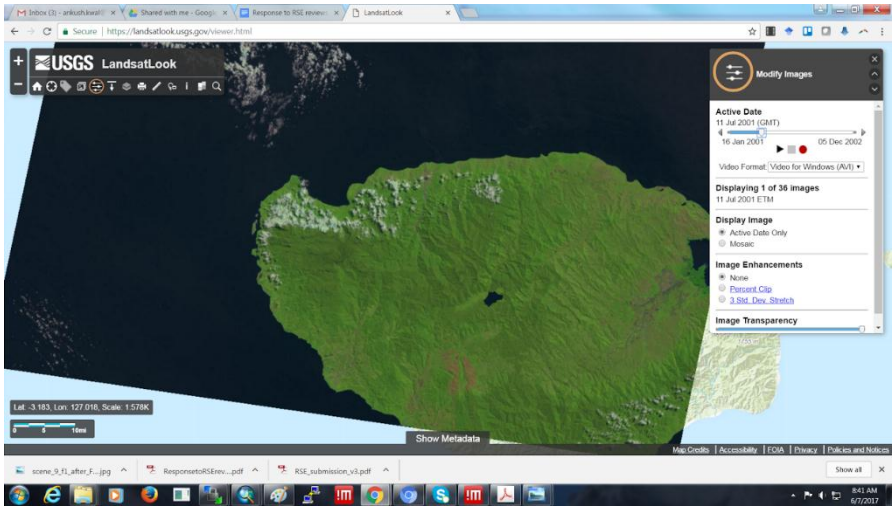


(b) 20100725

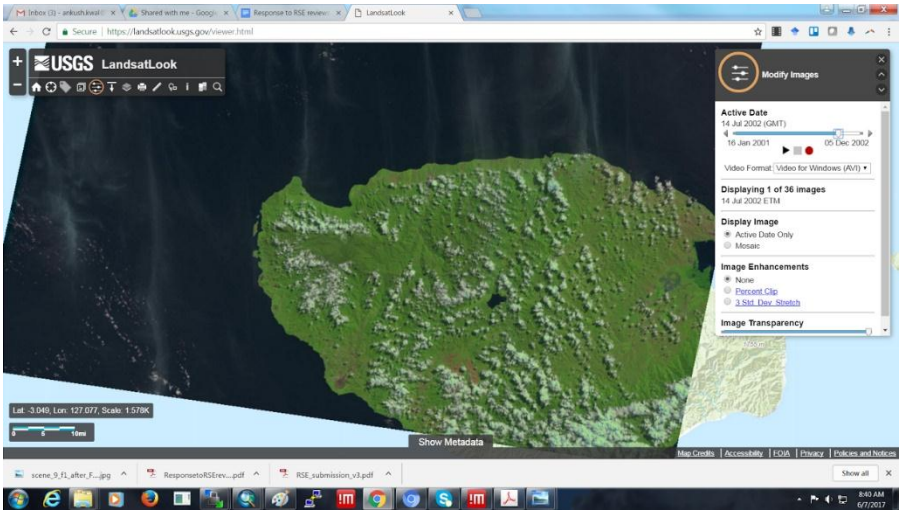


(c) 20101021

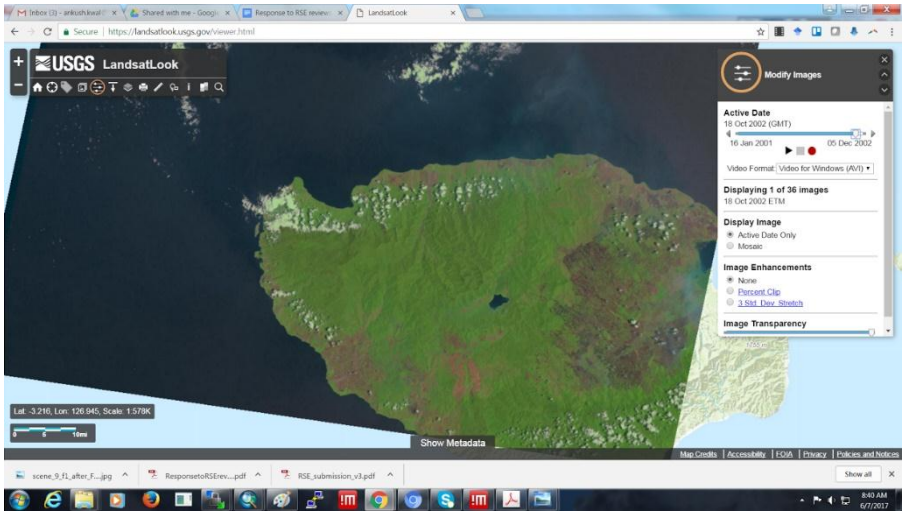
Figure S14: ID 16



(a) 20010711

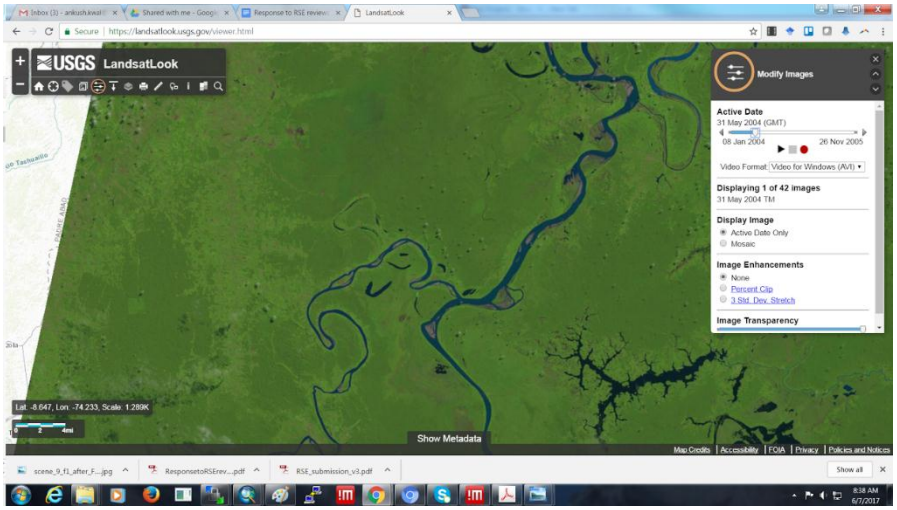


(b) 20020714

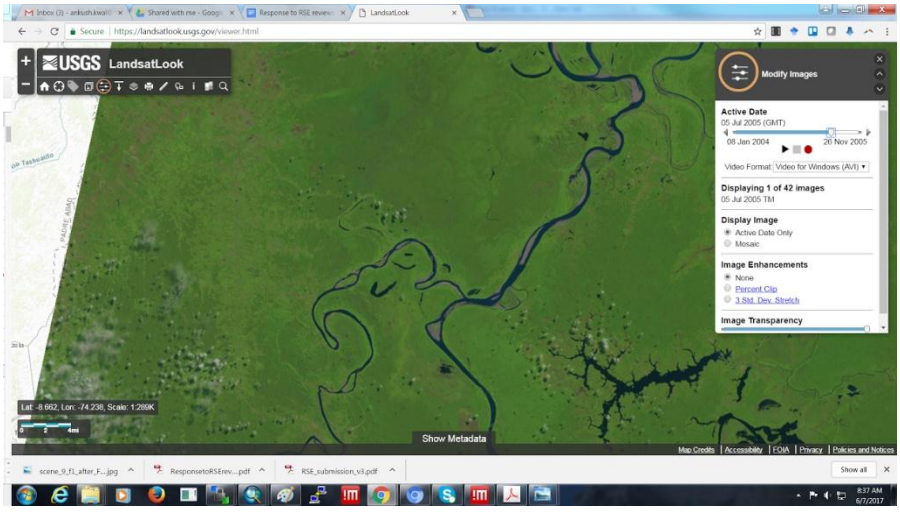


(c) 20021018

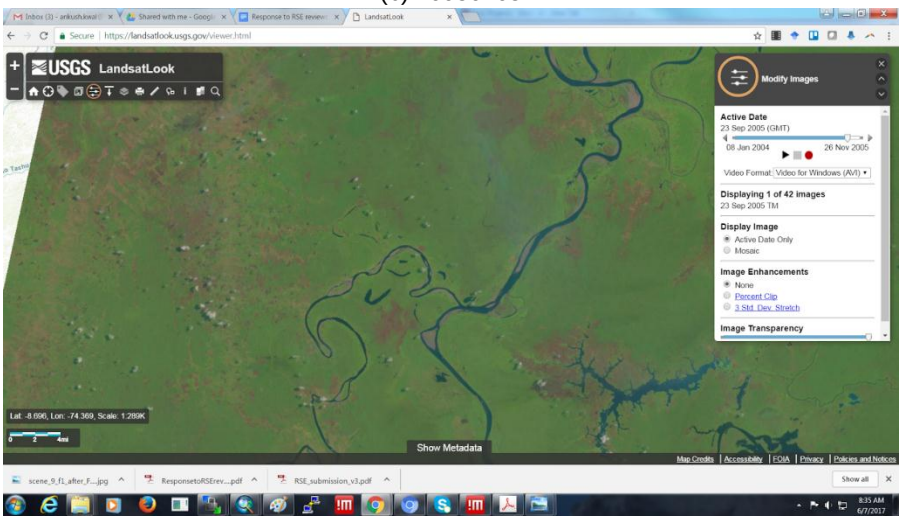
Figure S15: ID 17



(a) 20040531



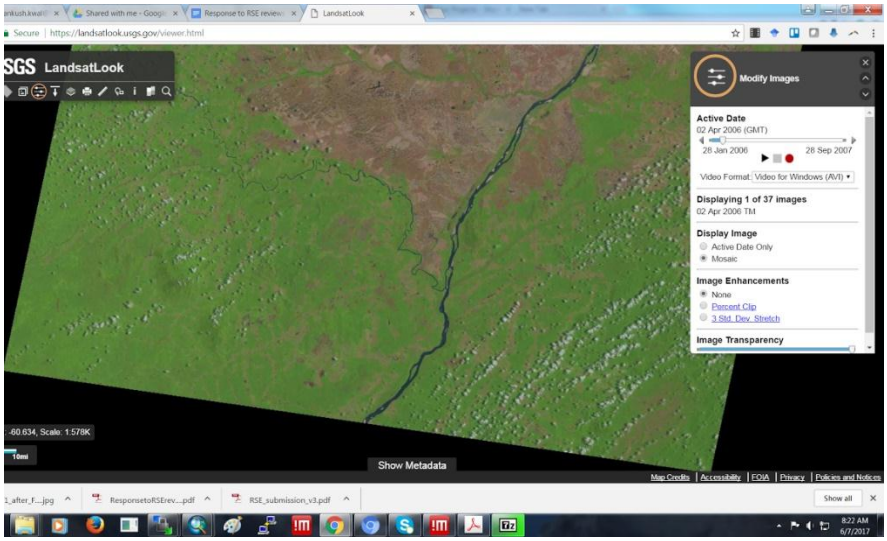
(b) 20050705



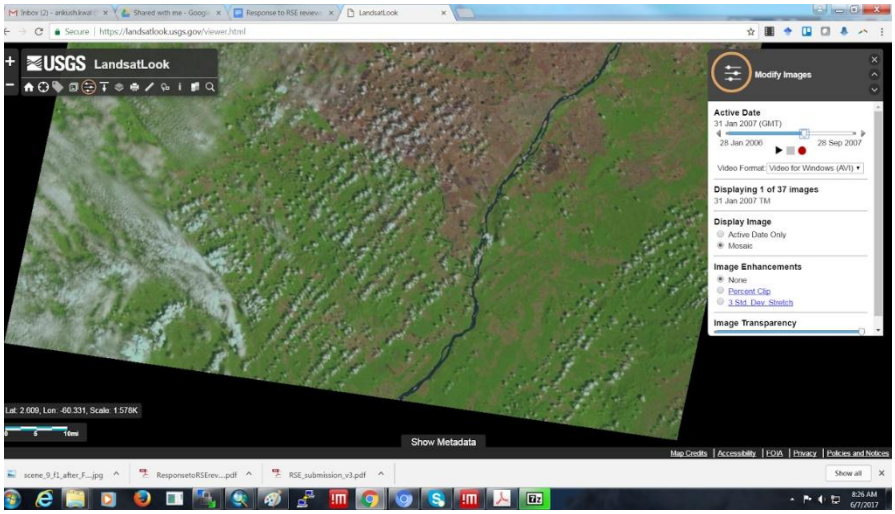
(c) 20050923

Figure S16: ID 18

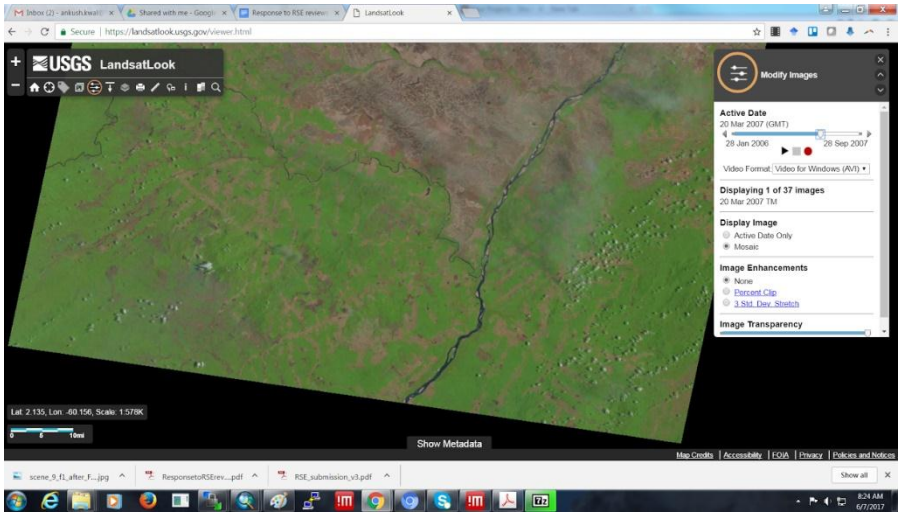
(Note: Ideally, image in (b) could have been used as pre-image as it is almost cloud free and within 100 days of the post image but was accidently not selected)



(a) 20060402



(b) 20070131

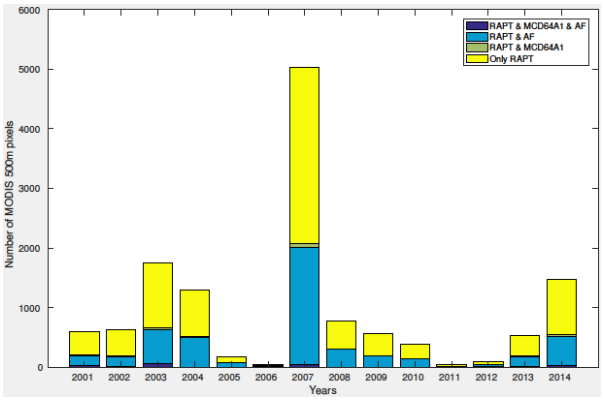


(c) 20070320

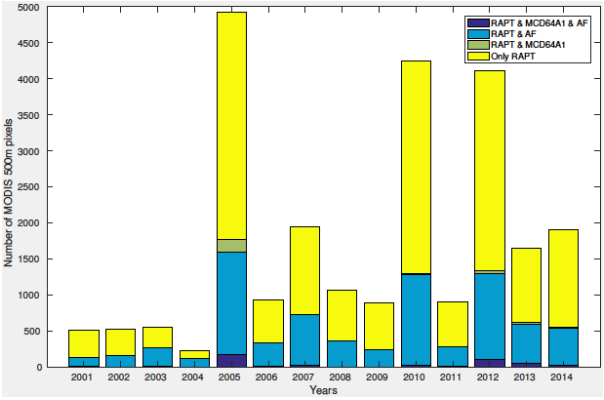
Figure S17: ID 19

2. *Temporal Distribution of Burned Area*

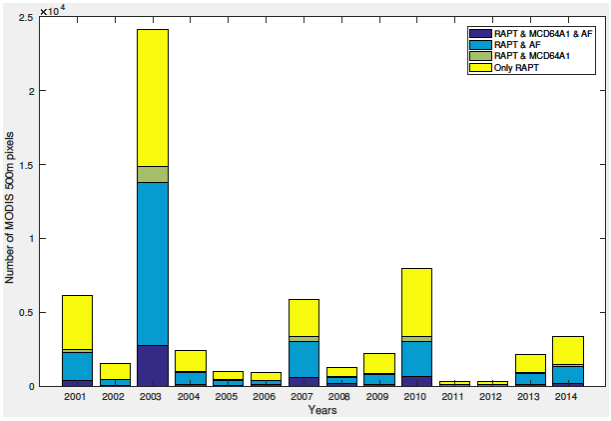
Figure 18 (a) – (o) present the annual burned area reported by RAPT, MCD64A1 and Active fire for each MODIS tile. Each bar in these figure report four different types of locations. Yellow color represent locations that do not have Active Fire signal and were only detected by RAPT algorithm. Light green color represent locations that do not have Active Fire signal but are detected by both MCD64A1 and RAPT algorithms. Light blue color represent locations that have Active Fire signal but are detected only by RAPT algorithm and finally dark blue represent locations that have Active Fire signal and were detected by both RAPT and MCD64A1 algorithms as well.



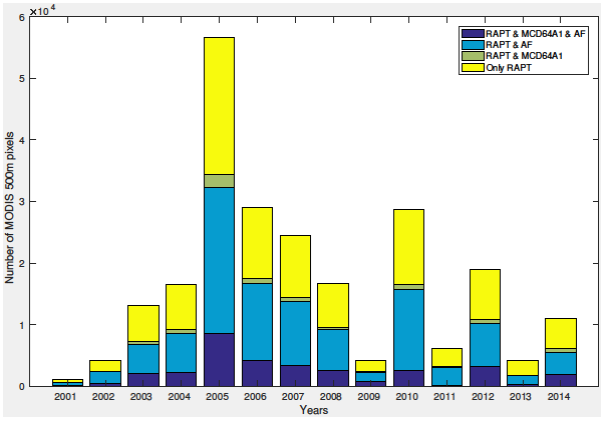
(a) h10v08



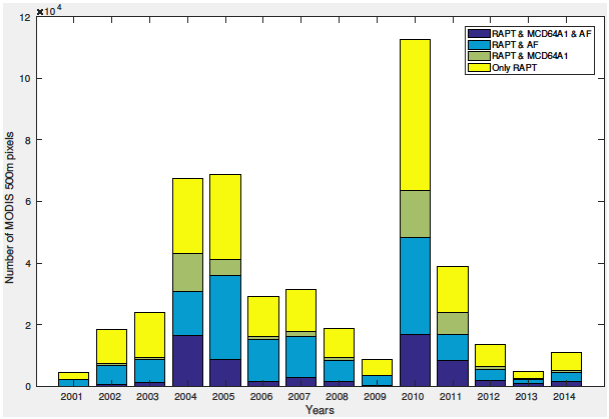
(b) h10v09



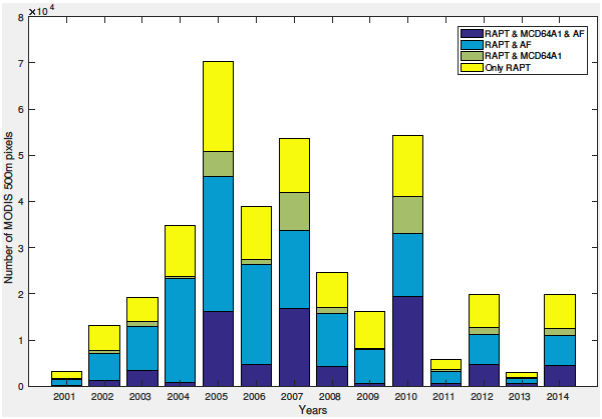
(c) h11v08



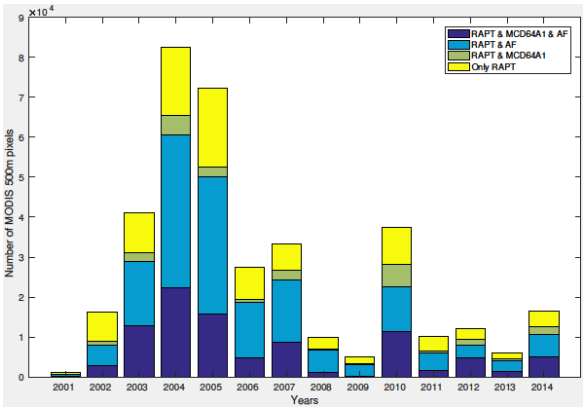
(d) h10v09



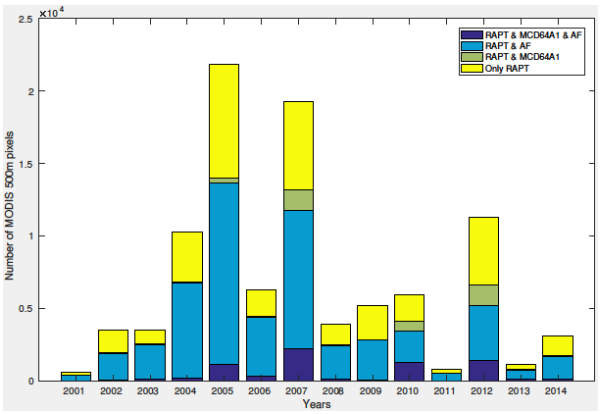
(e) h11v10



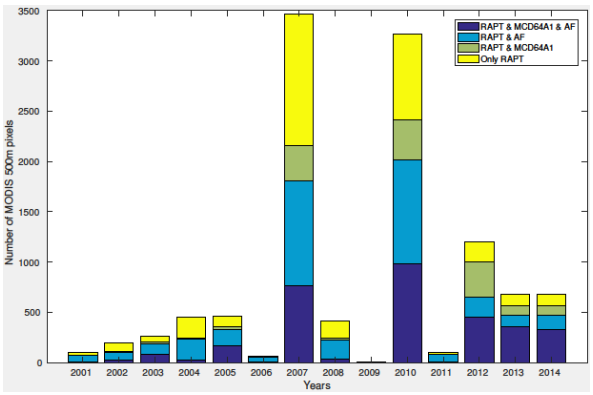
(f) h12v09



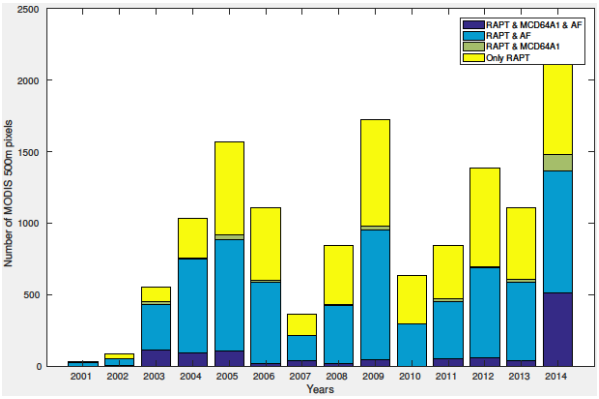
(g) h12v10



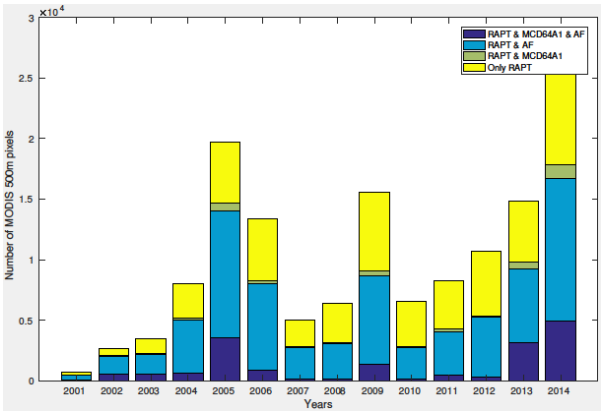
(h) h13v09



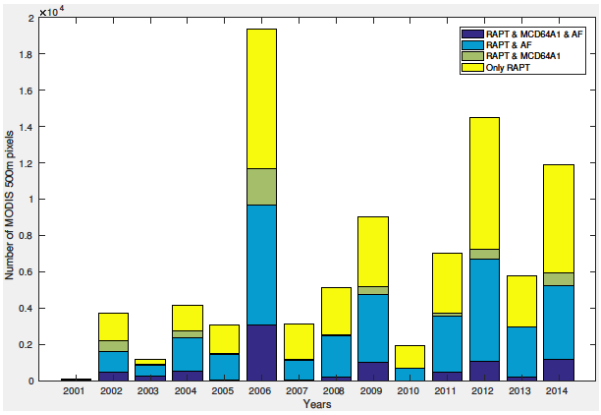
(i) h13v10



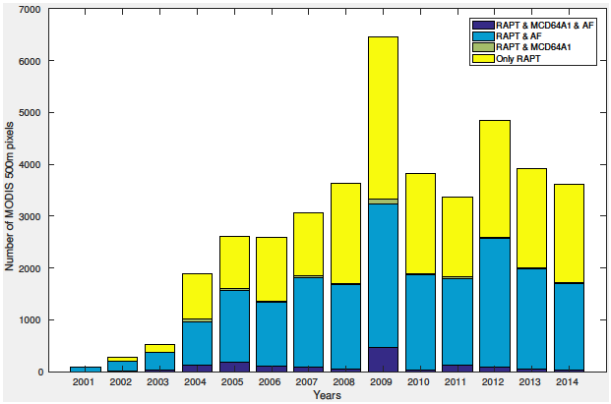
(j) h27v08



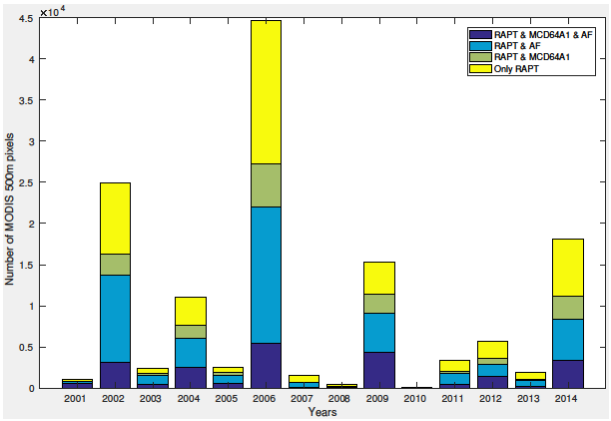
(k) h28v08



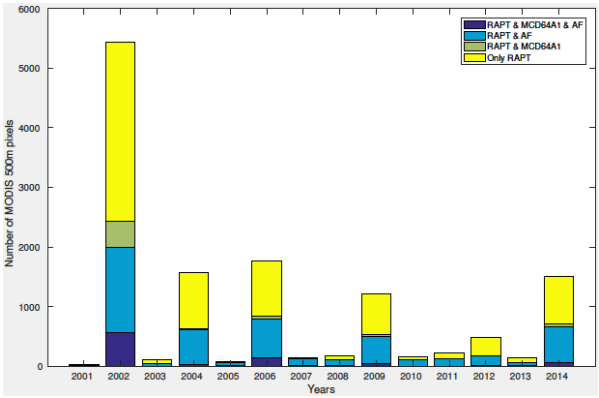
(l) h28v09



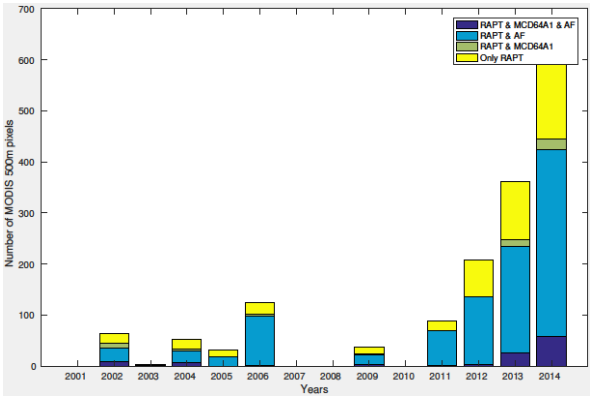
(m) h29v08



(n) h29v09



(0) h30v09



(n) h31v09

Figure S18