

EARTH OBSERVATION SATELLITE (EOS) DATA FOR DISASTER RISK IDENTIFICATION AND ASSESSMENT

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Asia Pacific Region

THE NEXT 15 MINUTES

INTRODUCTION

DISASTERS

EARTH OBSERVATION SATELLITES (EOS) AND DATA

CASE STUDY

EXAMPLES

NATURAL DISASTERS TYPES

METEOROLOGICAL – DROUGHT, FLOODS, EXTREME WEATHER

TOPOGRAPHICAL – VOLCANO, EARTHQUAKE, MASS MOVEMENTS

ENVIRONMENTAL – POLLUTION, BIO-EPIDEMIC

CHARACTERISTICS OF DISASTERS

PREDICTABILITY
CONTROLLABILITY/MITIGATION
SPEED OF ONSET
LENGTH OF FOREWARNING
DURATION OF IMPACT
SCOPE AND INTENSITY OF IMPACT

PHASES OF DISASTER

PRE-IMPACT PHASE
IMPACT PHASE
POST-IMPACT PHASE

UNDERSTANDING EOS DATA THROUGH RESOLUTION CHARACTERISTICS

SPECTRAL – WHAT CAN WE SEE – AMOUNT OF THE SPECTRUM

MULTISPECTRAL

RADAR

PANCHROMATIC

LIDAR

VISIBLE (BGR)

SPATIAL—WHAT CAN WE SEE - SIZE OF THE OBJECT/GROUND THAT CAN BE IDENTIFIED

VERY HIGH - <1 METER

HIGH – 1 - 10 METER

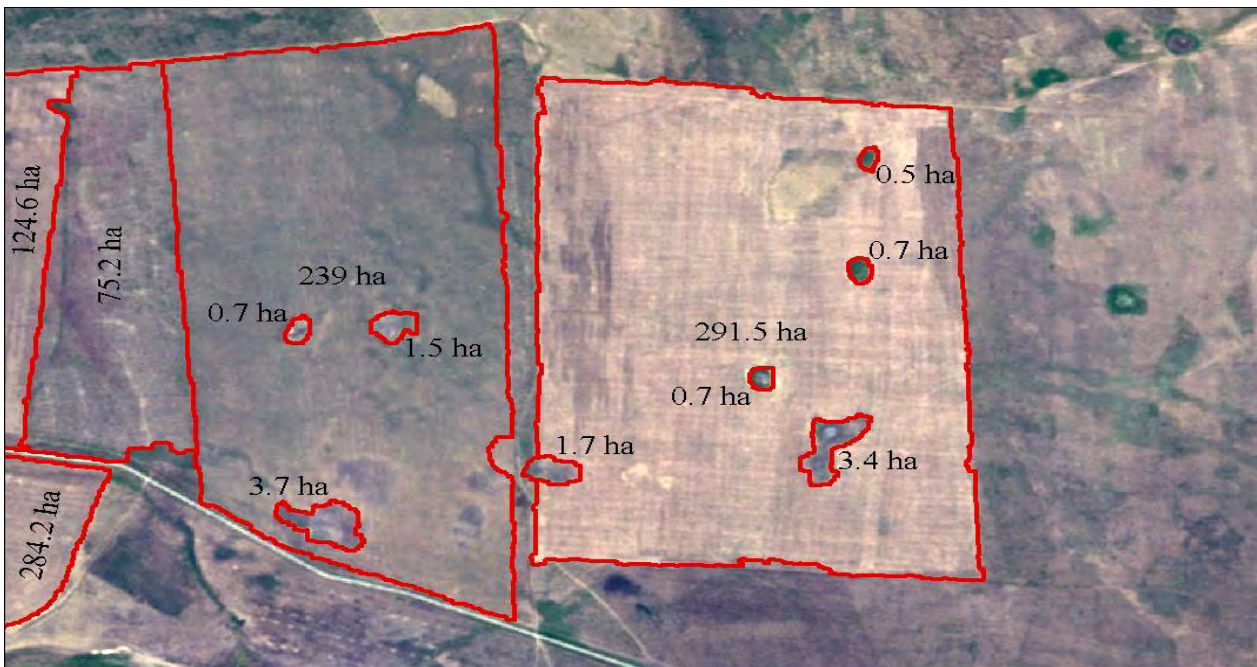
MID - 10-50 METER

LOW - >50 METER

RAPIDEYE 5 METER RESOLUTION W/MULTISPECTRAL



SPATIAL RESOLUTION – RAPIDEYE 5 METER PIXELS



LANDSAT 8 - 30 METER RESOLUTION W/MULTISPECTRAL BANDS

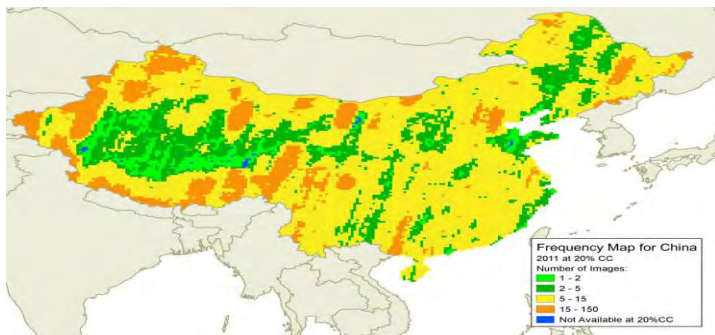
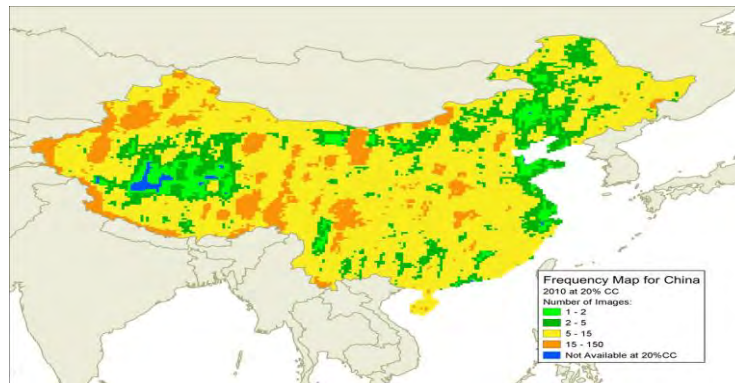
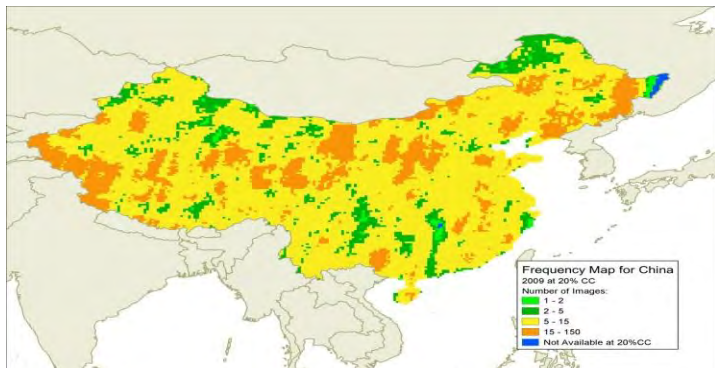


UNDERSTANDING EOS DATA THROUGH RESOLUTION CHARACTERISTICS

TEMPORAL – HOW OFTEN CAN WE VIEW THE SAME POINT ON THE GROUND
REVISIT CAPABILITY

ACCESSIBILITY – DOES THE DATA EXIST, CAN WE ACQUIRE THE DATA
ARCHIVE
LICENSING
DELIVERY TIME

CONSISTENT COVERAGE - CHINA 2009-2010-2011



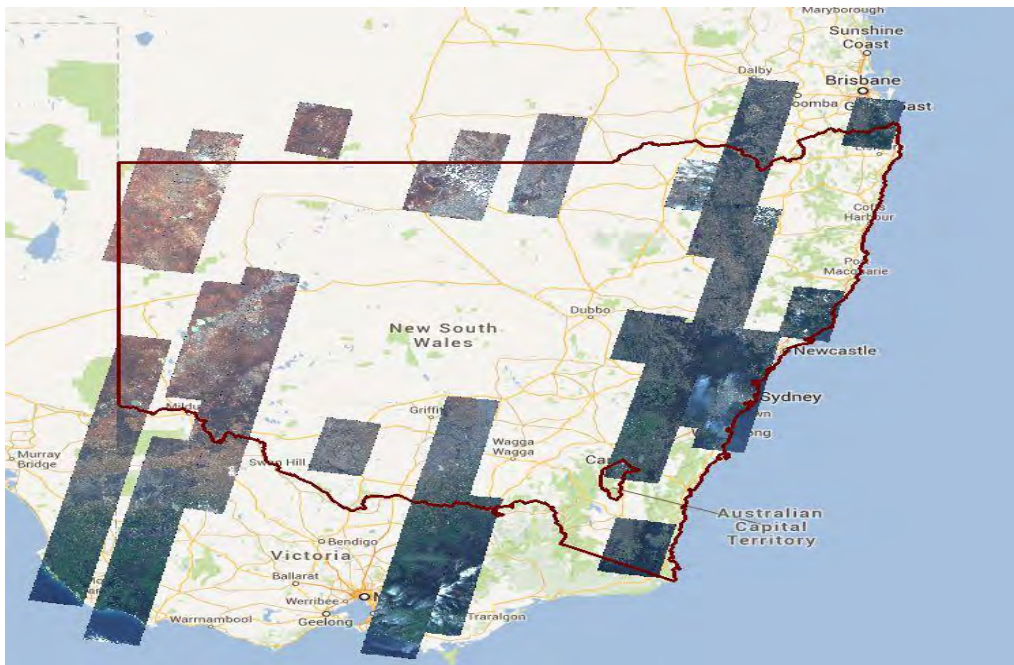
UNDERSTANDING EOS DATA THROUGH RESOLUTION CHARACTERISTICS

TEMPORAL – HOW OFTEN CAN WE VIEW THE SAME POINT ON THE GROUND
REVISIT CAPABILITY

ACCESSIBILITY – DOES THE DATA EXIST, CAN WE ACQUIRE THE DATA
PRICE/COST OF DATA
ARCHIVE
LICENSING
DELIVERY TIME

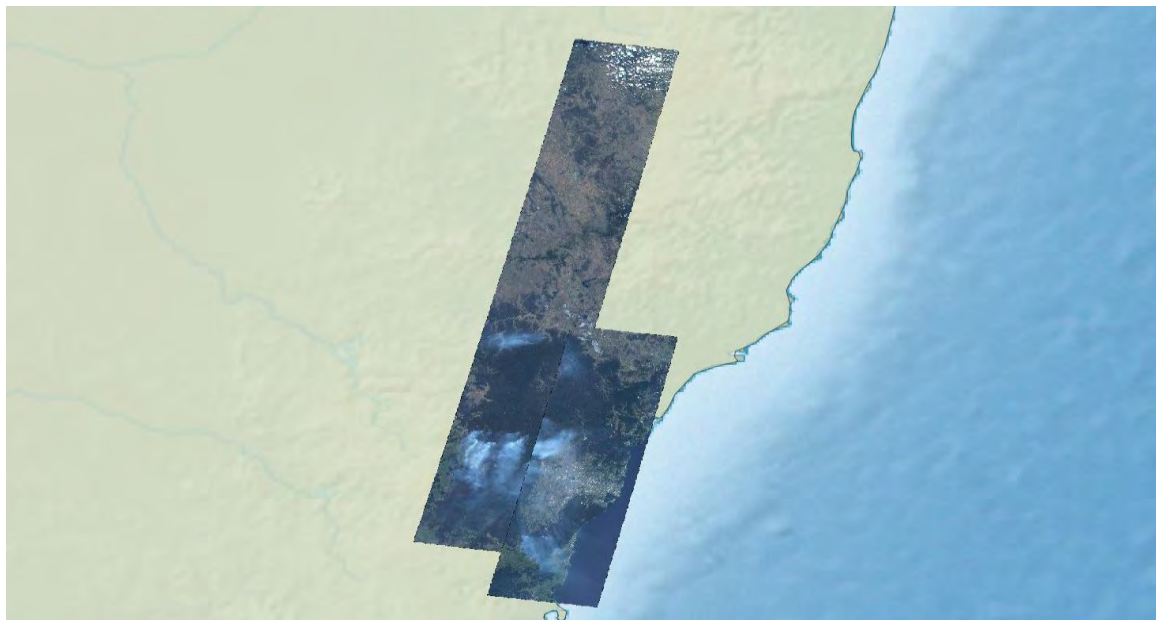
RAPIDEYE ACCESSIBILITY AND REVISIT CAPABILITY

NEW SOUTH WALES, AUSTRALIA – OCT. 15-20 2013



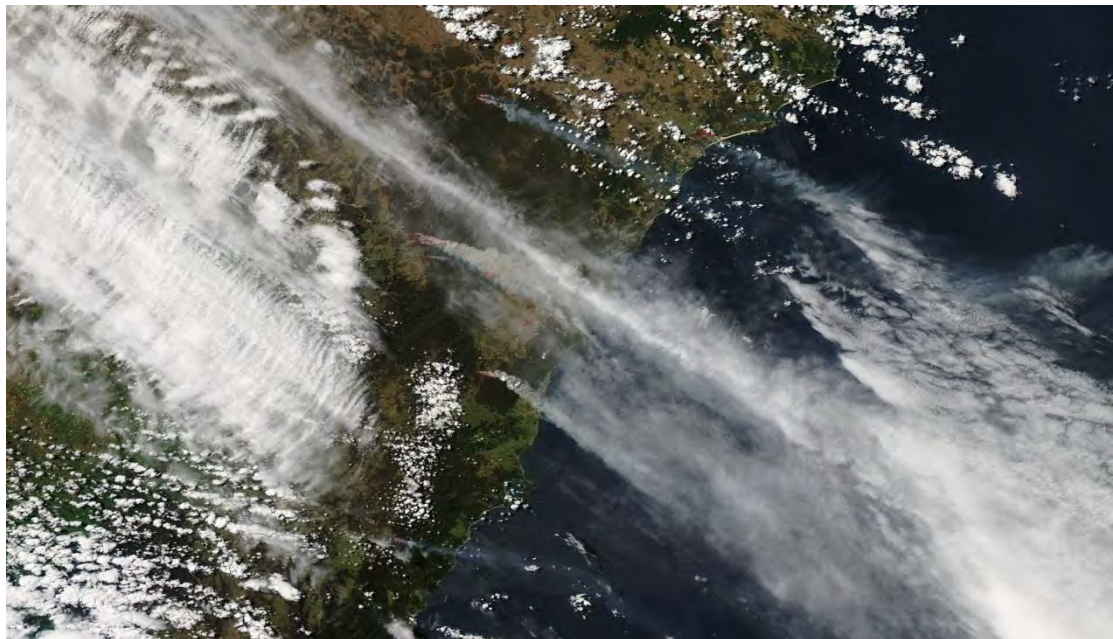
RAPIDEYE ACCESSIBILITY AND REVISIT CAPABILITY

NEW SOUTH WALES, AUSTRALIA – OCTOBER 19 2013



EOS SYNOPTIC CAPABILITY

NEW SOUTH WALES, AUSTRALIA – OCT. 2013



FAVORABLE CHARACTERISTICS OF EOS DATA FOR DISASTER AND RISK ASSESSMENT

ACCURATE
REPEATABLE
EXCHANGEABLE
CONSISTENT
CURRENT
CONTEXTUAL

FLOODS IN ACAPULCO, MEXICO SEPTEMBER 2013

A DEADLY FLOOD HIT FAMOUS VACATION DESTINATION ACAPULCO, MEXICO THIS SEPTEMBER. RAPIDEYE HAS CAPTURED BEFORE AND AFTER IMAGERY THAT SHOWS THE IMPACT AND MAGNITUDE OF THE FLOOD FROM AN EARTH OBSERVATION POINT OF VIEW. THIS TRAGIC EVENT, KILLING AT LEAST 80 PEOPLE, DEVoured HOMES, STRANDED THOUSANDS OF TOURISTS, AND LEFT MANY HOMELESS. ADDITIONALLY, MUDSLIDES, LACK OF ELECTRICITY AND WATER, AND REPORTED LOOTING IMPACTED THE ALREADY DEVASTATED RESIDENTS AND VISITORS TO THE CITY.

[FLOODS MEXICO](#)

PAKISTAN EARTHQUAKE CREATES A NEW ISLAND 2013

RAPIDEYE SATELLITES HAVE CAPTURED SOMETHING TRULY RARE, A NEW ISLAND. AFTER THE DEADLY 7.7 MAGNITUDE EARTHQUAKE IN PAKISTAN. AN ISLAND WAS DISCOVERED IN THE ARABIAN SEA, OFF THE COAST OF GWADAR IN BALUCHISTAN PROVINCE. THE ISLAND, MADE UP OF HARDENED MUD AND ROCKS, IS APPROXIMATELY 170 METERS WIDE AND UP TO 16 METERS HIGH. SCIENTISTS SUSPECT THIS IS A TEMPORARY FORMATION THAT MAY DISAPPEAR IN A FEW MONTHS. RAPIDEYE HAS A BEFORE AND AFTER LOOK AT THIS UNUSUAL OCCURRENCE.

[PAKISTAN NEW ISLAND](#)

OKLAHOMA TORNADO USA MAY 2013

A TORNADO STRUCK MOORE, OKLAHOMA ON MONDAY, MAY 20. THE TORNADO WAS REPORTED TO HAVE BEEN 2 MILES WIDE AT SOME POINTS. THE ESTIMATED PEAK WIND RANGED FROM 200 TO 210 MPH - WHICH WOULD MAKE IT AN EF5, THE MOST POWERFUL CATEGORY OF TORNADOES POSSIBLE.

RAPIDEYE DIRECTED ITS SATELLITE SYSTEM TO IMAGE THE IMPACTED AREA IN OKLAHOMA IMMEDIATELY FOLLOWING THE NEWS OF THE TORNADO. IMAGES WERE ACQUIRED TWO DAYS AFTER THE INCIDENT. THE RAPIDEYE ARCHIVE WAS ALSO IMMEDIATELY CHECKED FOR ANY IMAGES TAKEN BEFORE THE EVENT.

[OKLAHOMA TORNADO](#)

WILDFIRES IN ALGERIA 2012

BETWEEN JUNE AND AUGUST OF 2012, NUMEROUS WILDFIRES BURNED THROUGHOUT PINE AND CORK OAK FORESTS IN NORTHERN ALGERIA, SCORCHING MORE THAN 30,000 HECTARES ACROSS THE COUNTRY. THE ALGERIAN CIVIL PROTECTION SERVICE MOBILISED 15,000 FIRE FIGHTERS TO CONTROL AND SUPPRESS THE FIRES. THE INTERNATIONAL CHARTER ON SPACE AND MAJOR DISASTERS PRODUCED SATELLITE IMAGERY WHICH SHOWS THE EXTENT OF THE DAMAGE.

ALGERIA WILDFIRES

THE FUTURE

MORE SATELLITES

RAPIDEYE NEXT GENERATION

SENTINEL-1

TELEOS-1

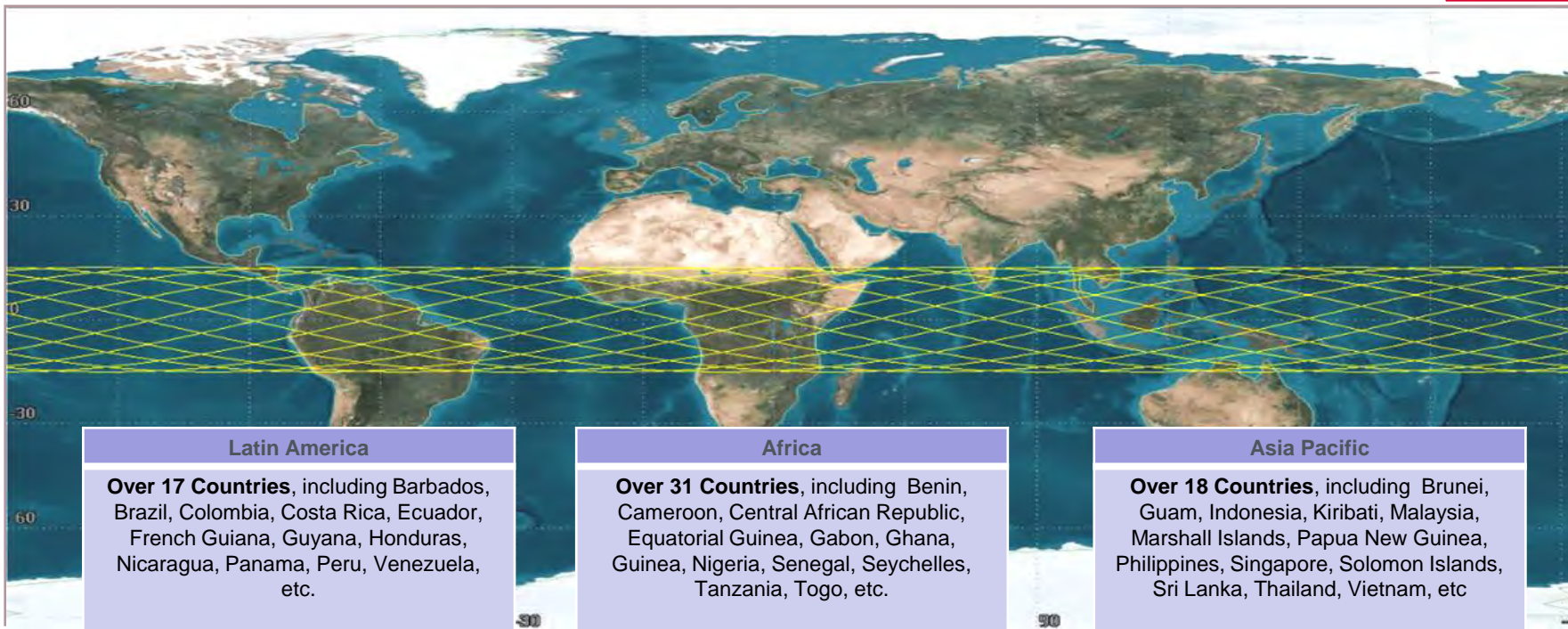
MORE DATA

NEW ACCESS

CLOUD SERVICES

REAL TIME FEEDS

TeLEOS-1 Coverage Regions



SUGGESTED EOS DATA RELATED LINKS

RAPIDEYE ON-LINE ARCHIVE

EYEFIND.RAPIDEYE.COM/

INTERNATIONAL CHARTER SPACE AND MAJOR DISASTERS

WWW.DISASTERSCHARTER.ORG/HOME

UNITED STATES GEOLOGICAL SURVEY

USGS.GOV/PUBPROD/AERIAL.HTML#SATELLITE

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