

2022 CHRISTMAS TREE

VASUJO PRESENTATION

R.S. & NATURAL - human

ENVIRONMENTAL

MICROBIAL - Post-DOC

GLOBAL CLIMATE CHANGE  
ENV. STUDIES

M.S. MEDICAL POLS CONTAMINATION IN

GLOBAL - MICROCEN - POLY-  
SAMPLING STRATEGY ALL

MSU DISSERTATION

LAND COVER MAPPING AT  
SUB-PIXEL SCALES

FUZZY CLASSIFICATION OF LIKELIHOOD  
IN PIXEL

URBAN VS. LAND CLASSIFICATION

SUB-PIXEL - MAXIMUM

LIKELIHOOD

WATER RESEARCH

TURBIDITY - WATER

QUALITY

TURBIDITY VALUES

ARABIAN + URBAN MOSAIC FOREST

WATER QUALITY MONITORING SITE  
CLEAN THE SERVICES

HOW TO  
READ  
TEST/  
CALIBRATE  
SUB-PIXEL  
CLASSSET?

CARE Study TULLAHAM BASIN

USE DEM - LIDAR -

IA SUB-BASINS

ARNO MAP 1/10/00 - SURFACE HO  
MODEL

26 SITES - sub-basin

NATIONAL LAND COVER DATABASE

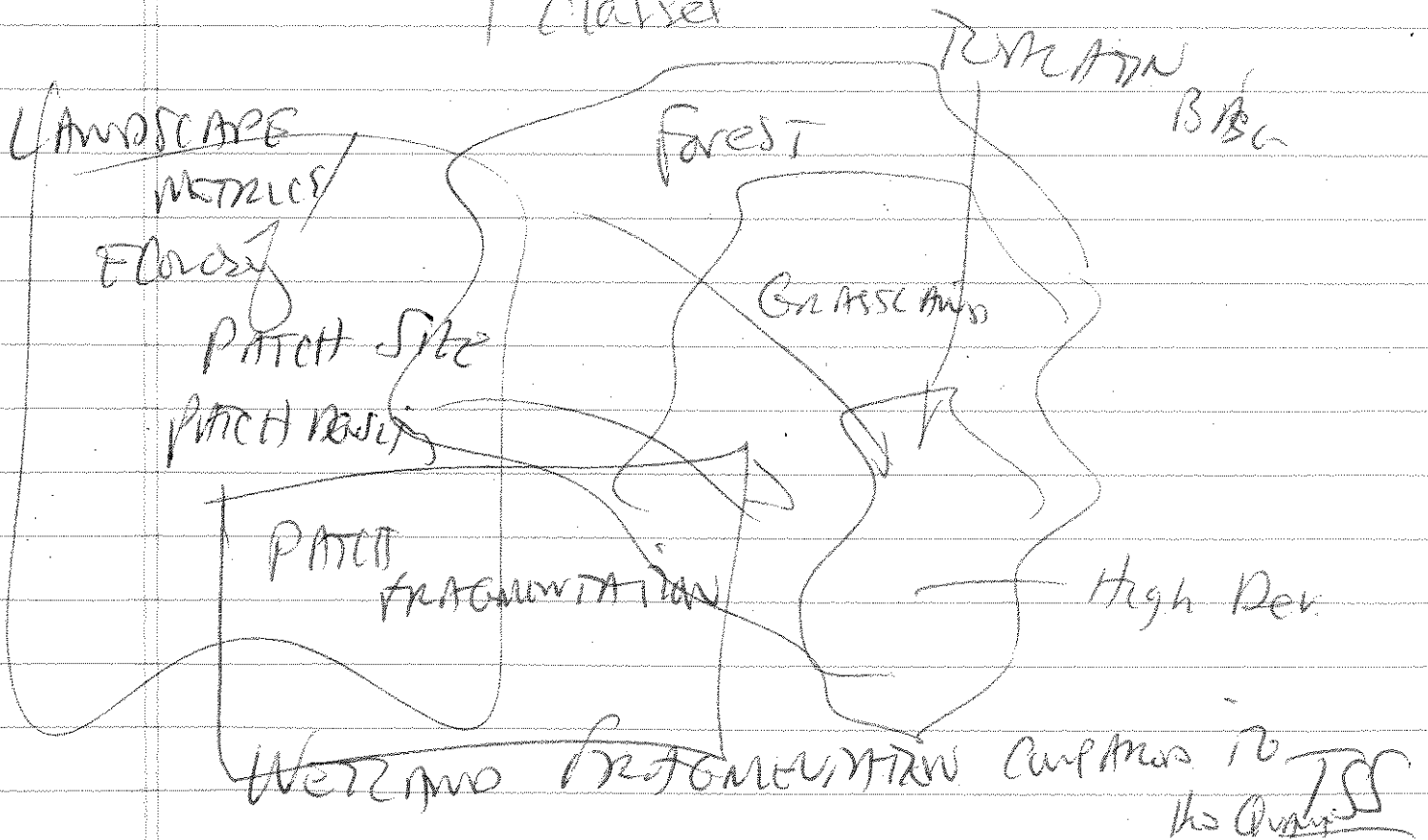
USGS - 5 year cycles

FOREST - GRASSLAND - URBAN

CLASSIFIED - Development low - med -  
high

GRASSLAND - WETLAND

7 classes



Focus on Text Response Series  
As indicators  
working with Q&Q

CASE Study DOHA QATAR

TIME  
Series  
MODELS

- ① LAND USE CHANGE
- ② URBAN HEAT ISLAND MODELING

Doha, Capital of Qatar  
FAST GROWING

Dry, Desert, High Summer  
TEMP  
Dec 120 of Summer  
60-700 Annual

LAND USE Area DATA

LANDSAT 7 SINCE 1972  
Acquisition DATE

1987-2009

1987 → 2013

MAP OF URBAN

GROWTH PATTERN

CLASSIFICATION  
- URBAN  
- VEG.  
- SOIL  
- H2O

LAND CHANGE Model 50 years  
into future

Proactive Model

PAST CHANGES → projection

Future Growth Scenario

URBAN GROWTH BOUNDARY

Growth Boundary

2028 model

PRO-CBS

8

URBAN

Growth

PLAN

URBAN HEAT ISLAND  
SURFACE TEMP.

1.5 m ABOVE

GROUND SURFACE

- CAL MEMPHIS TEMP SENSOR  
+ GPS

ROAD TRIP

ROAD TOP 10 METERS DISTANCE  
ON MOTOR

CALIBRATION

30-m LANDSAT 8 IMAGE

20% URBAN, 20% URBAN, 20% URBAN

Buffer Analysis:

→ more Air Temp.

Where is  
DATA & DATA  
CERTAIN  
FROM?  
DETERMINATION??

Regression model for  
measuring TEMP DATA

Wave Form Model:

Check Model RMSE

Actual vs. Model

Random Error Model →

Heat map for Data

Predictive Variance vs. Time of Day

Technique Model

Residual Cost  
Development

- Rain-Tree

Applications Heat Index models

Rain: Landfall &

SATMEL2

2000s Cities in US

for CLIMATE ADAPTATION PLANNING