

Southern Dunes

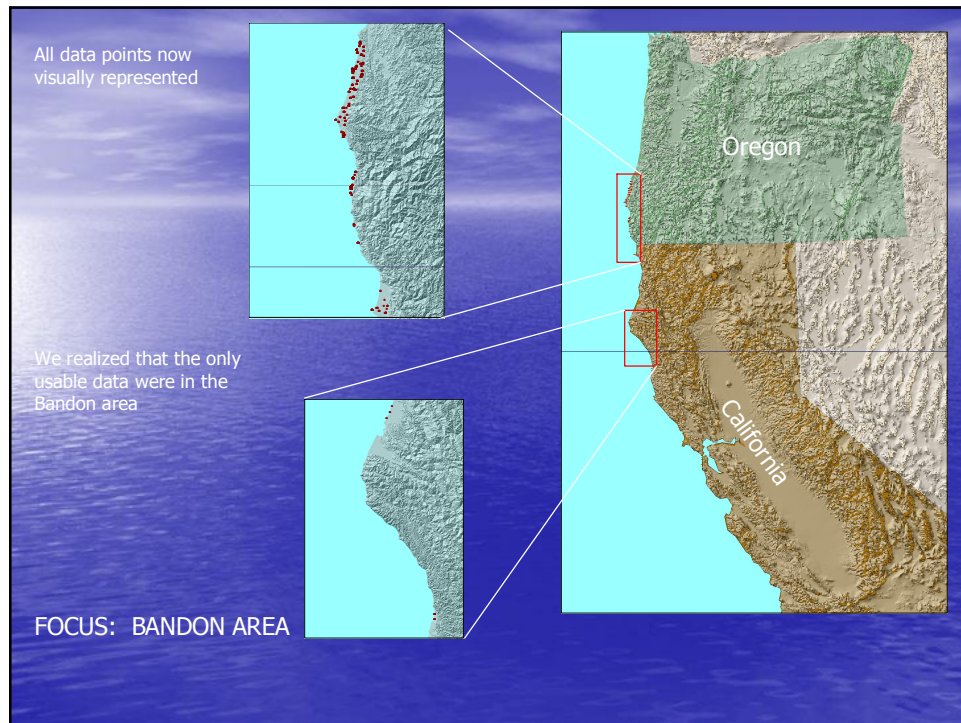
Sustainability issues along the coast
due to intense development

Jim Randall
Paolo Weatherbee

INTRODUCTION

Reconnaissance mapping of 25 west coast
dune sheets to establish;

- landward extent of Pleistocene dunes
- Transition from Holocene to Pleistocene dunes
- Morphostratigraphic development of coastal plain dune sheet deposits



Attributes critical to regional mapping of dunal properties for:

- Drainage
- Slope stability
- Wetlands
- Aquifer potential

ORIGIN AND HYDROGEOLOGIC PROPERTIES OF
GLEYED PALEOSOLS IN
SEA CLIFF EXPOSURES OF PLEISTOCENE DUNE
SHEETS, CENTRAL OREGON
COAST

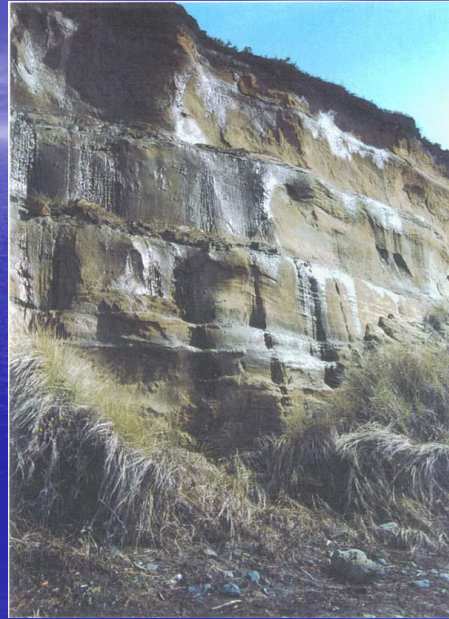
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Work involved

- Manipulation of original excell files
- Importation into ArcMap
- Joins, Relates
- Select by attributes
- Interpolation

METHODS

Data in its original format before being Given to us

Dune Sheet	Zone/HQ	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure	Units	Depth (cm)	Grain Size	Bedding	Color	P. Ig/cm²	Structure	Diagenesis
B4ND1	UTM-N	479080	388290	10	50	5/27/2001	RC								
Site Notes: This site is a roadcut on Seven Devils Road just south of Two Mile Creek.															
B4ND2	UTM-N	4790730	388460	7	86	12/15/2001	RC								
Site Notes: Site is west of cranberry bog development south of Two Mile Creek on Seven Devils Road.															
B4ND3	UTM-N	479010	388250	13	72	12/15/2001	RC								
Site Notes: Site is located 200 m north of Three Mile Creek (Agate Beach Trail) crossing on Seven Devils Road.															
B4ND4	UTM-N	478880	388153	10	83	12/15/2001	RC								
Site Notes: This site is at the North Bend Blowing pit. The action is measured from just south of the pit. The infat-top-soil was measured just west of the pit, and the P3 (shoreface deposits) are from the pit.															
B4ND5	UTM-N	4788390	390730	11	113	12/15/2001	RC								
Site Notes: This site is at the North Bend Blowing pit. The action is measured from just south of the pit. The infat-top-soil was measured just west of the pit, and the P3 (shoreface deposits) are from the pit.															

Data was modified for ease and imported into ArcGIS

Set up coordinate system using display "XY data menu"

Set to UTM Zone 10 N

Dune Sheet	Zone/HQ	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure	Units	Depth (cm)	Grain Size	Bedding	Color	P. Ig/cm²	Structure	Diagenesis
B4ND1	UTM-N	479080	388290	10	50	5/27/2001	RC								
Site Notes: This site is a roadcut on Seven Devils Road just south of Two Mile Creek.															
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Tables as they appear in
ArcMap after:

Projected coordinate
System was defined

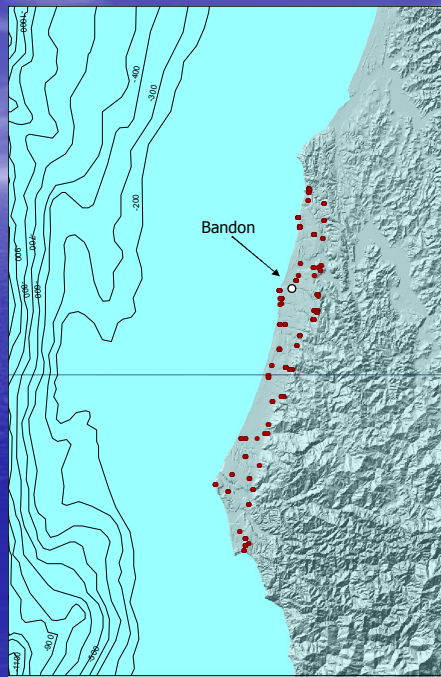
We then turned
this into a feature
class as seen in the
next slide

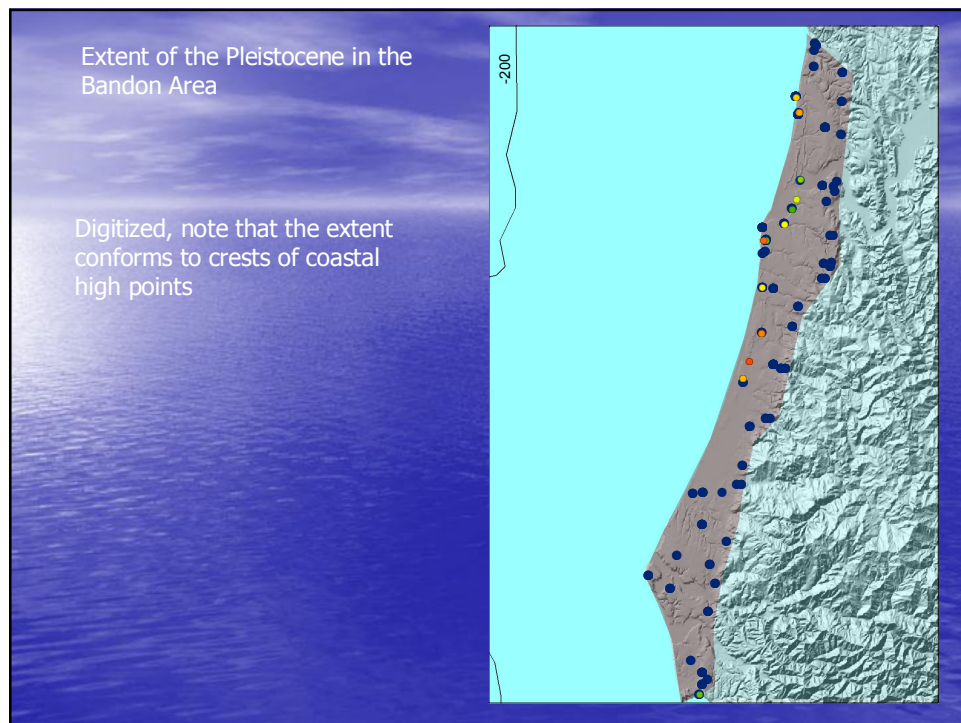
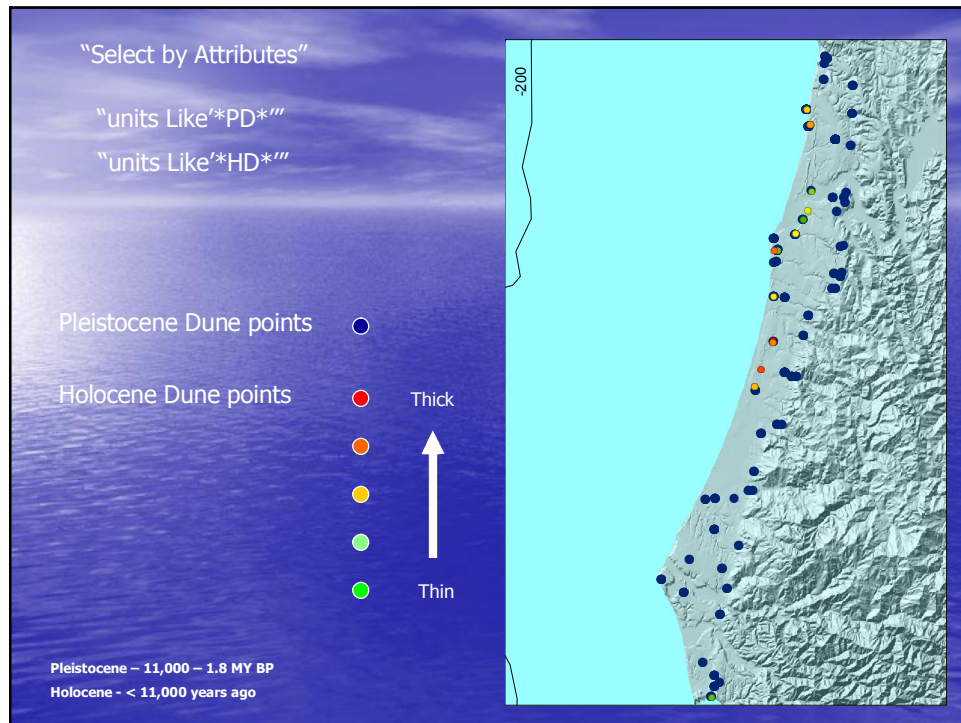
Most work involved:

- Manipulation of tables
- Relate
- Joins
- Select by attributes
- Interpolation

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2	10001	100	100	100	100	100	100	100
3	10002	100	100	100	100	100	100	100
4	10003	100	100	100	100	100	100	100
5	10004	100	100	100	100	100	100	100
6	10005	100	100	100	100	100	100	100
7	10006	100	100	100	100	100	100	100
8	10007	100	100	100	100	100	100	100
9	10008	100	100	100	100	100	100	100
10	10009	100	100	100	100	100	100	100
11	10010	100	100	100	100	100	100	100
12	10011	100	100	100	100	100	100	100
13	10012	100	100	100	100	100	100	100
14	10013	100	100	100	100	100	100	100
15	10014	100	100	100	100	100	100	100
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27	10026	100	100	100	100	100	100	100
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39	10038	100	100	100	100	100	100	100
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44	10043	100	100	100	100	100	100	100
45	10044	100	100	100	100	100	100	100
46	10045	100	100	100	100	100	100	100
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65	10064	100	100	100	100	100	100	100
66	10065	100	100	100	100	100	100	100
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91	10090	100	100	100	100	100	100	100
92	10091	100	100	100	100	100	100	100
93	10092	100	100	100	100	100	100	100
94	10093	100	100	100	100	100	100	100
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97	10096	100	100	100	100	100	100	100
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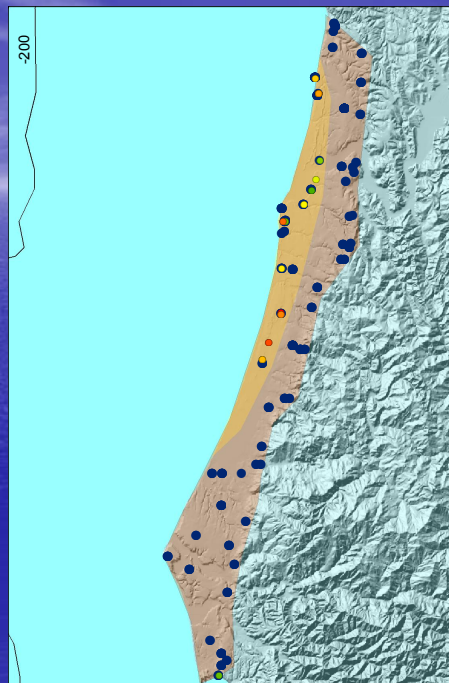
All dune points in the Bandon area
Via "Select by Attributes"





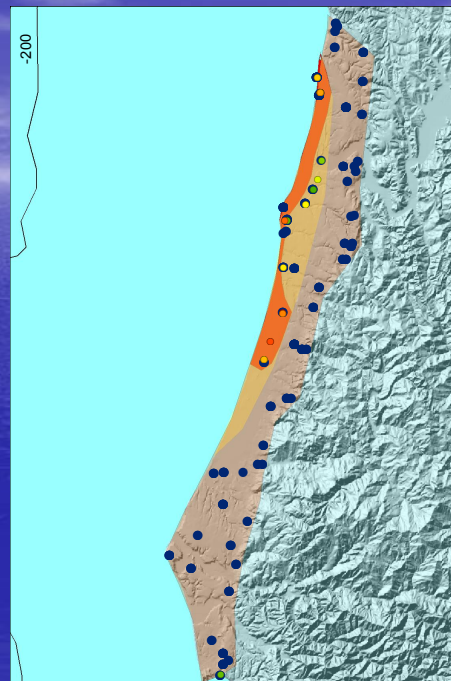
Extent of the Holocene

A clear distinction between extents



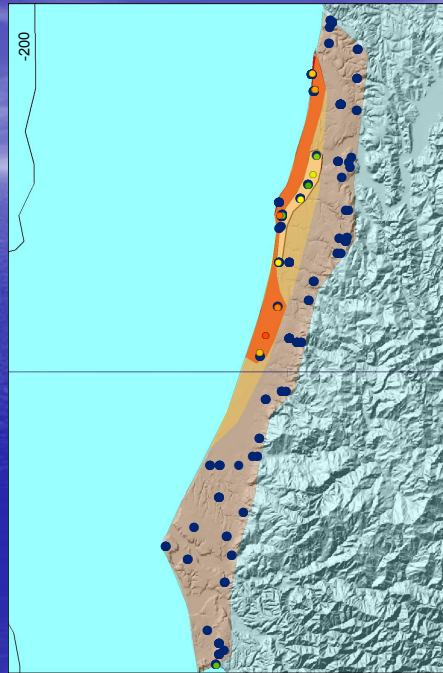
Digitized the thick Holocene
Sediments for visualization

- 6.10 M – 10.0 M
- 3.40 M – 5.50 M



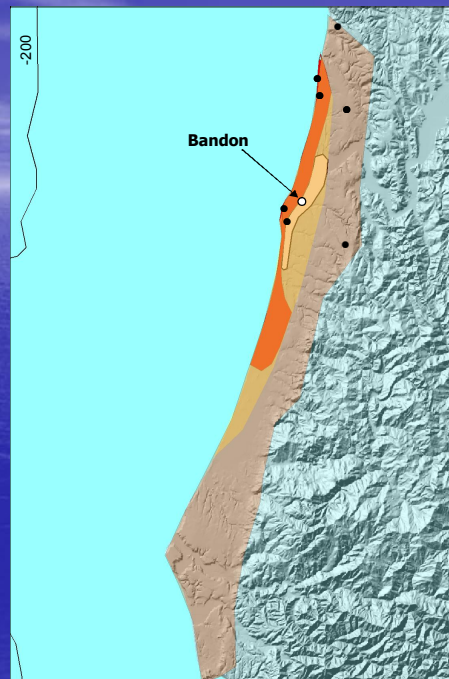
Digitized the thin Holocene
Sediments for visualization

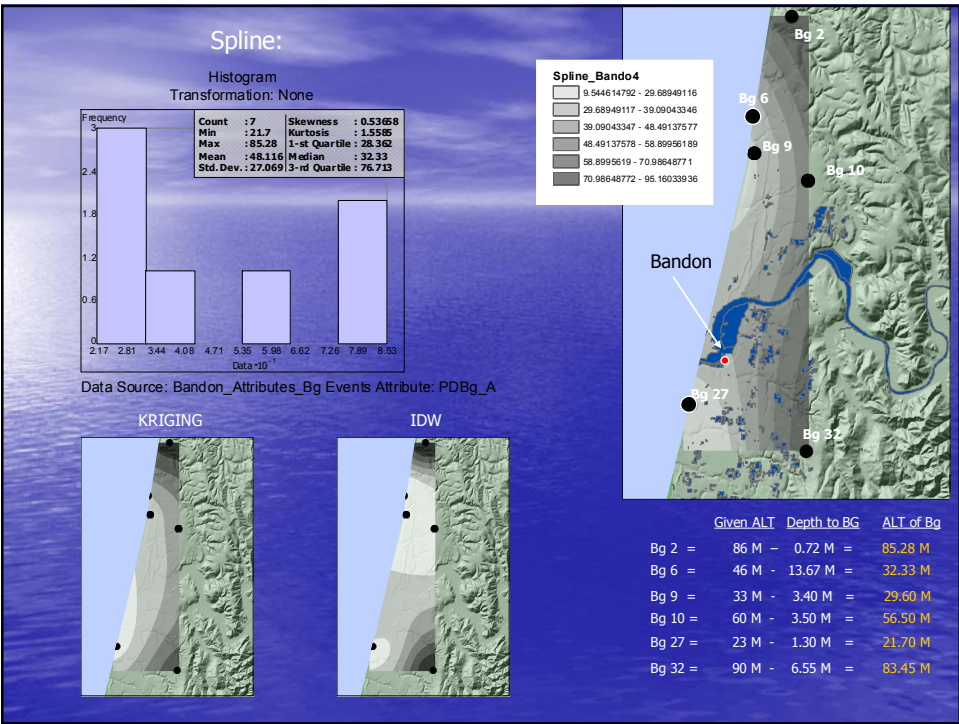
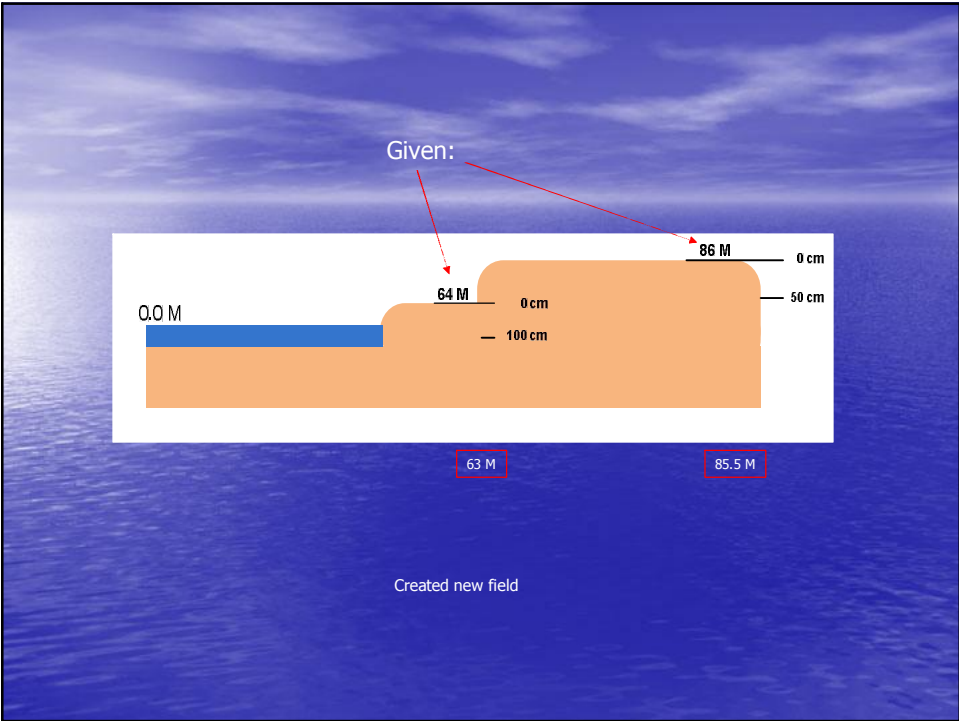
- 2.15 M – 3.00 M
- 0.05 M – 2.00 M



Bg points – A reduced grayish sedimentary
Layer that is highly impermeable and has
Implications for the environment and
construction

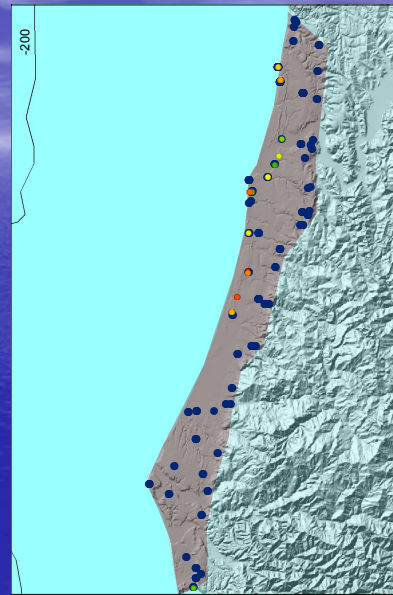
Had to interpolate and
create a surface.



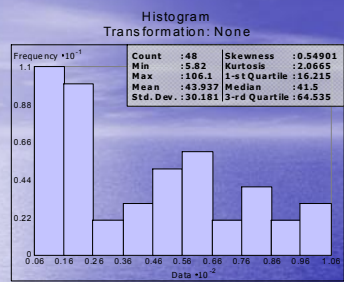


We also interpolated the surface at the
apparent bottom of the pleistocene

Pleistocene ○

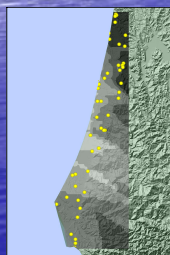


IDW

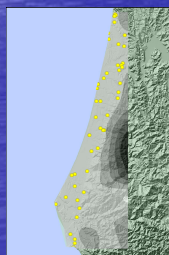


Data Source: pleistocene cox Attribute: ALT Cox

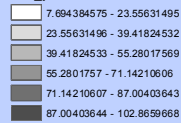
Kriging



Spline



Idw_pleistoc1



Closing Remarks

We were given the southern portion of the study area.

Not many points south of Bandon – likely because of the funding (Oregon funding)

With respect to limited amount of data, we found extents of Holocene and Pleistocene (more extensive).

Found depths of the gleyed layer (Bg) in the Bandon area

Depths for the Pleistocene

Need more data points and info in the area that we concentrated on.
For example: “surface breaks” ?

