Technology and environment 2:

Environment, Earth

TECHNOLOGY AND ENVIRONMENT 2: SEMESTER 1 : ENVIRONMENT AND ECOLOGY WEEK 2: MICROCLIMATE MODIFICATION WELCOME! TECHNOLOGY AND ENVIRONMENT 2: SEMESTER 1 : ENVIRONMENT AND ECOLOGY SEMESTER 2 : BUILDING TECHNOLOGY WEEK 2: MICROCLIMATE TUTORIAL TECHNOLOGY AND ENVIRONMENT 2: SEMESTER 1 : ENVIRONMENT AND ECOLOGY WEEK 2: MICROCLIMATE MODIFICATION TUTORIAL: 27 SEPTEMBER MICROCLIMATE ANALYSIS: GEORGE SQUARE GARDENS TECHNOLOGY AND ENVIRONMENT 2: SEMESTER 1 : ENVIRONMENT AND ECOLOGY WEEK 2: MICROCLIMATE MODIFICATION TECHNOLOGY AND ENVIRONMENT 2: SEMESTER 1 : ENVIRONMENT AND ECOLOGY WEEK 2: MICROCLIMATE MODIFICATION Edinburgh Wind Rose Speeds taken at 10 m above ground Source: Bureau Happold TECHNOLOGY AND ENVIRONMENT 2: SEMESTER 1 : ENVIRONMENT AND ECOLOGY WEEK 2: MICROCLIMATE MODIFICATION Edinburgh Seasonal Wind Data Note: Wind speed increases with height, so note the height at which wind data is taken. Airport data is generally taken at 6-10 meters above ground. TECHNOLOGY AND ENVIRONMENT 2: SEMESTER 1 : ENVIRONMENT AND ECOLOGY WEEK 2: MICROCLIMATE MODIFICATION + wind shadow - IMPACT OF BUILDING WIDTH ON AIR FLOW Source: Brown & DeKay, Sun, Wind & Light: Architectural Design Strategies TECHNOLOGY AND ENVIRONMENT 2: SEMESTER 1 : ENVIRONMENT AND ECOLOGY WEEK 2: MICROCLIMATE MODIFICATION IMPACT OF BUILDING DEPTH / SHAPE / HEIGHT ON AIR FLOW Source: Brown & DeKay, Sun, Wind & Light: Architectural Design Strategies TECHNOLOGY AND ENVIRONMENT 2: SEMESTER 1 : ENVIRONMENT AND ECOLOGY WEEK 2: MICROCLIMATE MODIFICATION SOLAR ANALYSIS: SUN PATH DIAGRAM Sun path diagrams

show the path of the sun in the skydome as projected onto a horizontal surface. The sun path diagram can be used to determine the sun s position in terms of altitude and azimuth for any hour of the year. Altitude (section): The angle between the sun and the earth. Azimuth (plan): The bearing angle of the sun. You must know both in order to draw the shadow cast by an object. Source: Brown & DeKay, Sun, Wind & Light: Architectural Design Strategies TECHNOLOGY AND ENVIRONMENT 2: SEMESTER 1 : ENVIRONMENT AND ECOLOGY WEEK 2: MICROCLIMATE MODIFICATION SOLAR ANALYSIS: SUN PATH DIAGRAM: EXAMPLE August 21, 9am (Edinburgh): Locate intersection Azimuth: Follow Line Radiating from Center (approx 57° east of south) Altitude: Follow concentric circles (approx 37°) Source: Brown & DeKay, Sun, Wind & Light: Architectural Design Strategies TECHNOLOGY AND ENVIRONMENT 2: SEMESTER 1 : ENVIRONMENT AND ECOLOGY WEEK 2: MICROCLIMATE MODIFICATION Source: Szokiolay TECHNOLOGY AND ENVIRONMENT 2: SEMESTER 1 : ENVIRONMENT AND ECOLOGY WEEK 2: MICROCLIMATE MODIFICATION SOLAR RADIATION: SOLAR ANALYSIS For tomorrow’s tutorial, please print one of these sundials and af x a gnomen of length noted. Bring a model to test. If it is not sunny, bring a torch. Source: Brown & DeKay, Sun, Wind & Light: Architectural Design Strategies TECHNOLOGY AND ENVIRONMENT 2: SEMESTER 1 : ENVIRONMENT AND ECOLOGY WEEK 2: MICROCLIMATE MODIFICATION Solar Analysis (Modeling Shadows) : Sundial September 21, 9am (Toronto, Canada) Note: Ensure your model is oriented correctly (north up) TECHNOLOGY AND ENVIRONMENT 2: SEMESTER 1 : ENVIRONMENT AND ECOLOGY WEEK 2: MICROCLIMATE MODIFICATION TECHNOLOGY AND ENVIRONMENT 2: SEMESTER 1 :

ENVIRONMENT AND ECOLOGY WEEK 2: MICROCLIMATE MODIFICATION TECHNOLOGY AND ENVIRONMENT 2: SEMESTER 1 : ENVIRONMENT AND ECOLOGY WEEK 2: MICROCLIMATE MODIFICATION TECHNOLOGY AND ENVIRONMENT 2: SEMESTER 1 : ENVIRONMENT AND ECOLOGY WEEK 2: MICROCLIMATE MODIFICATION