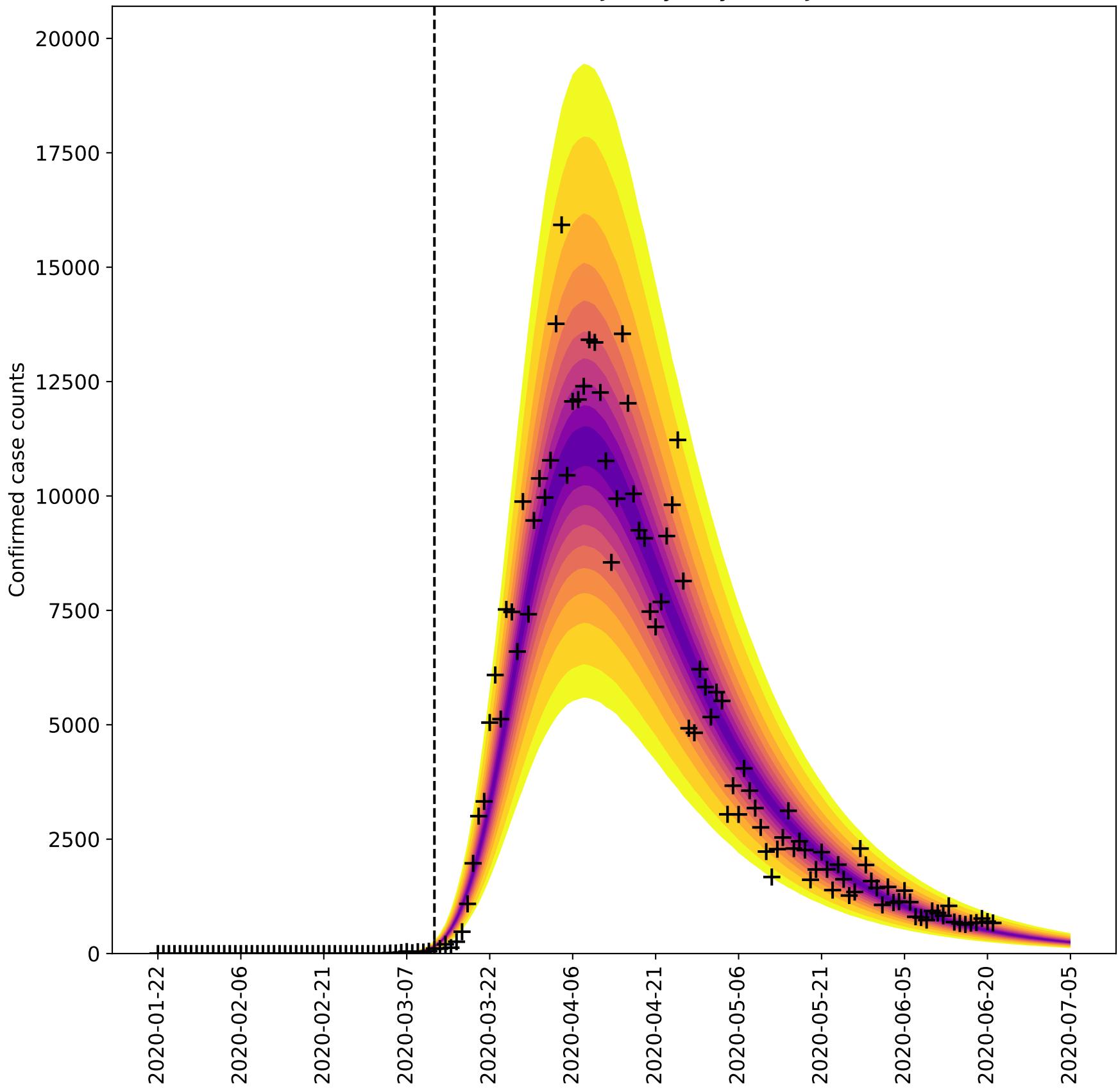
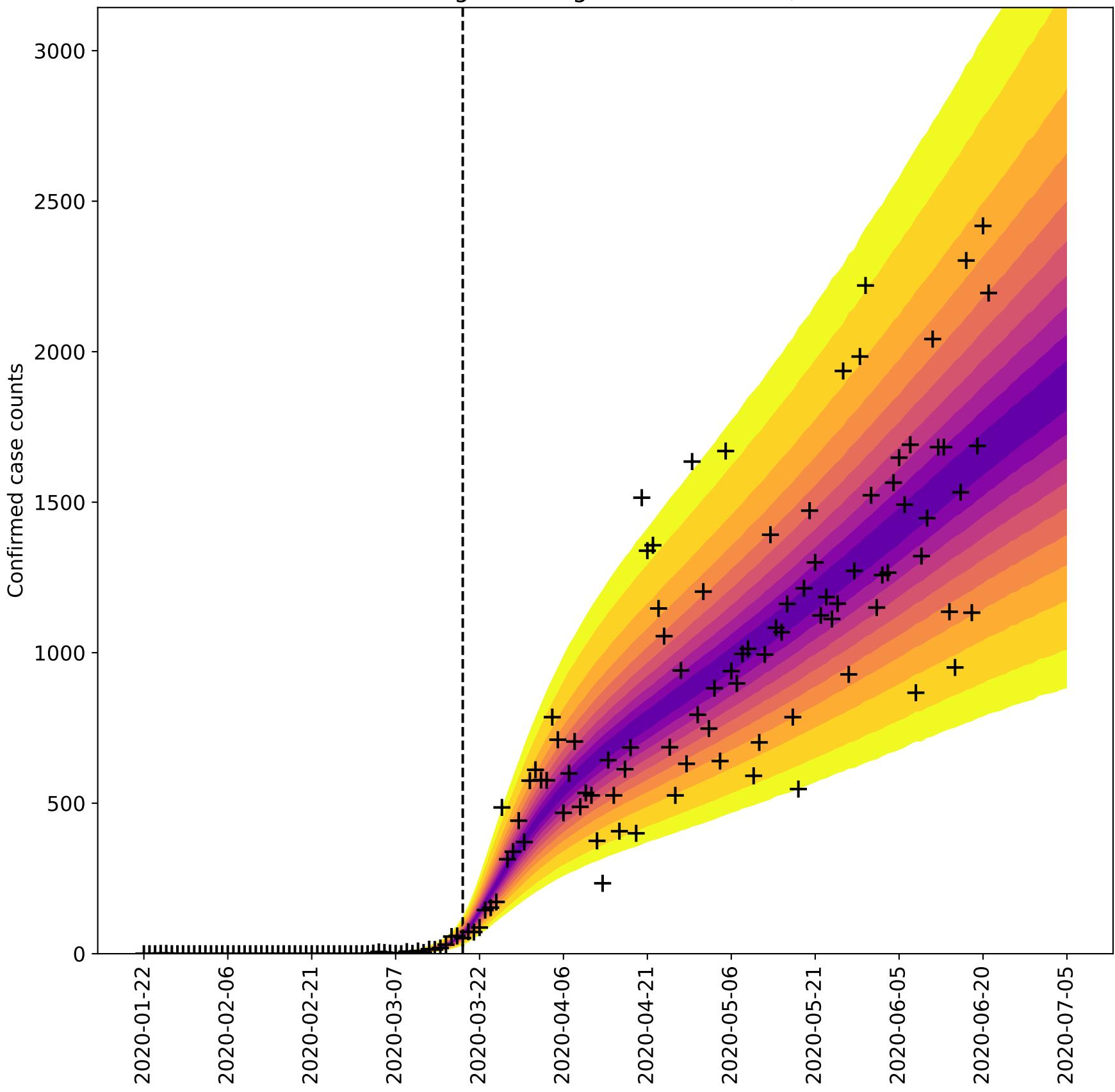


Posterior predictive checking. The time-dependent predictive posterior distribution for daily number of COVID-19 cases detected is visualized for all 280 MSAs considered in our analysis. Inferences are based on daily reports of new COVID-19 cases from 21-January-2020 to 21-June-2020 (inclusive dates). The compartmental model (11) accounts for an initial social distancing period followed by n additional periods. We considered $n = 0, 1$ and 2 and selected the best n using the model-selection procedure of Lin et al. (11). Crosses indicate observed daily case reports. The shaded region indicates the prediction uncertainty and inferred noise in detection of new cases. The color-coded bands within the shaded region indicate the median and different credible intervals (e.g., dark purple corresponds to the median, the lightest shade of yellow corresponds to the 95% credible interval, and gradations of color between these two extremes correspond to different credible intervals as indicated in the legend). In each panel, the vertical broken line indicates the onset time of the first social-distancing period. For MSAs with $n = 1$, there is an additional vertical dotted line, which indicates the onset time of the second social-distancing period. The model was used to make forecasts of new case detection for 14 days after 21-June-2020. The last prediction date was 5-July-2020.

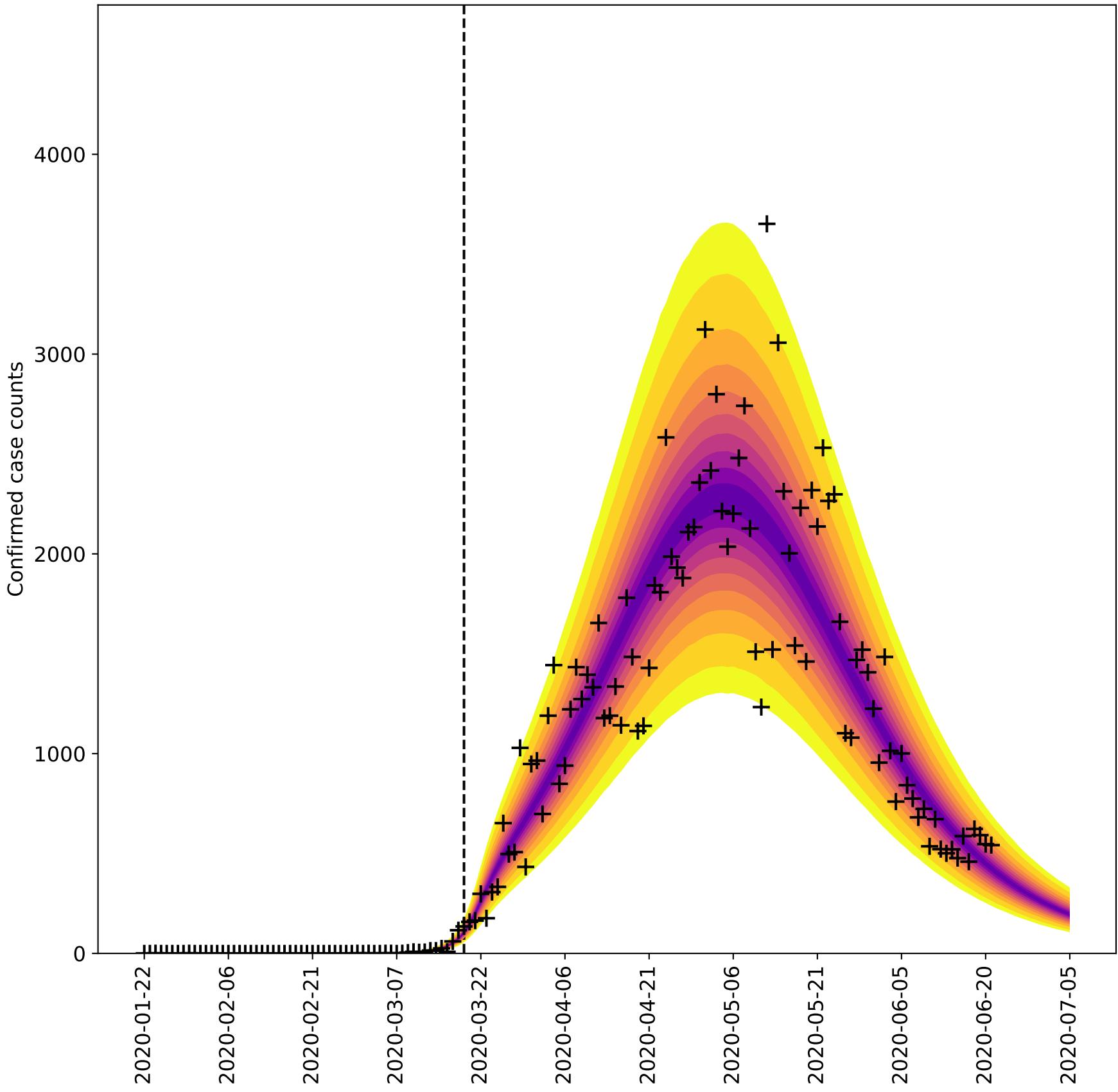
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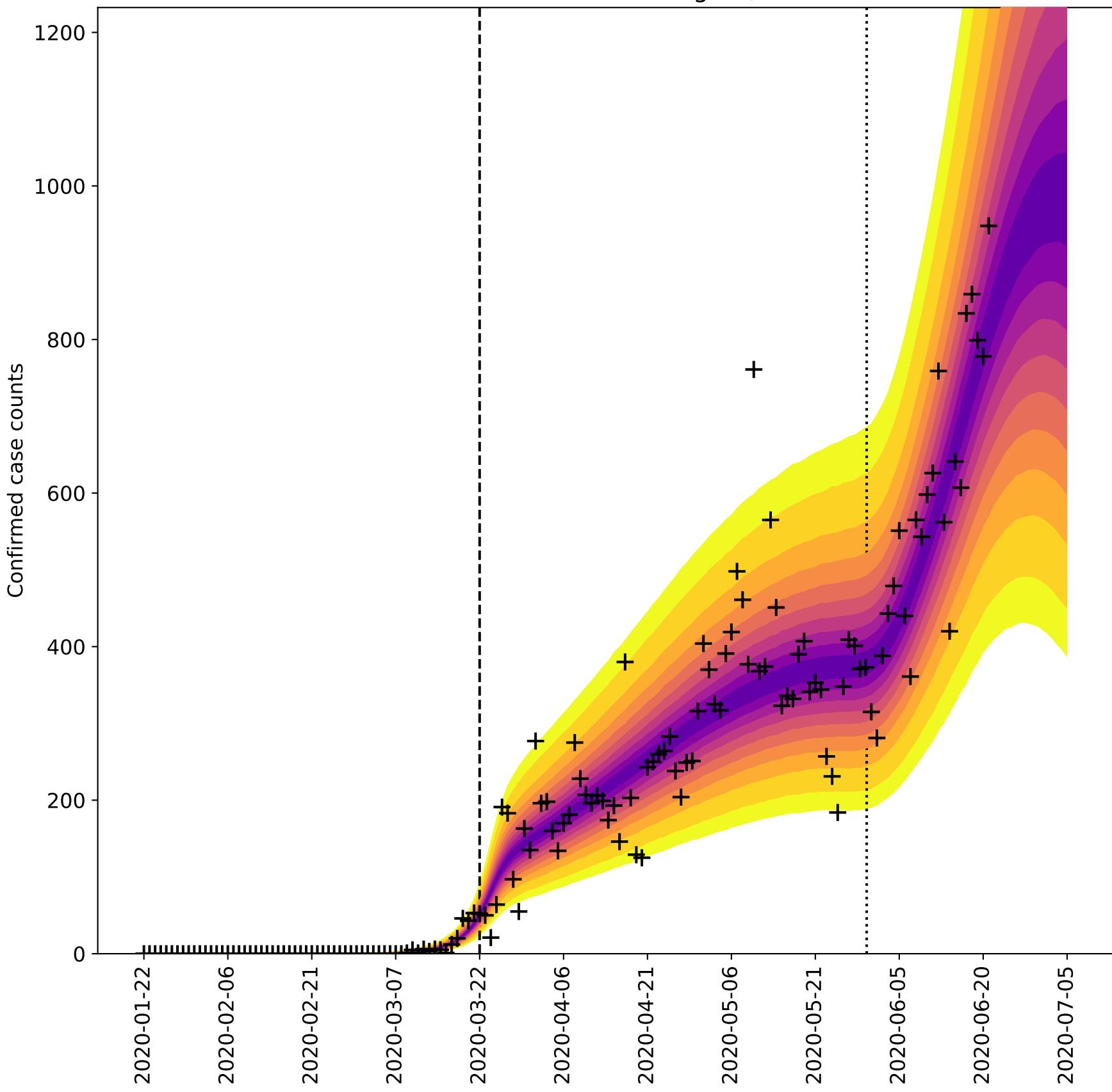
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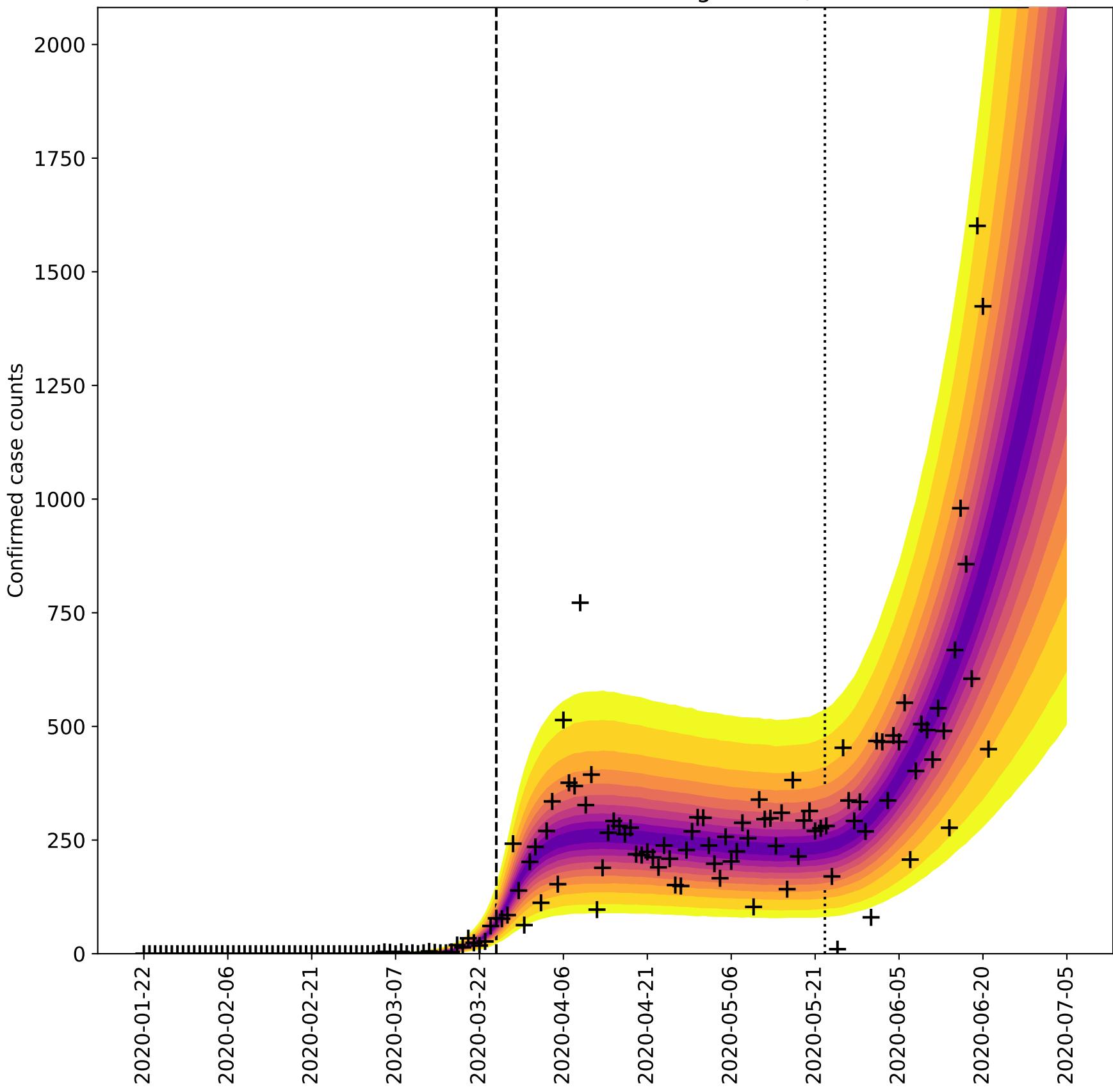
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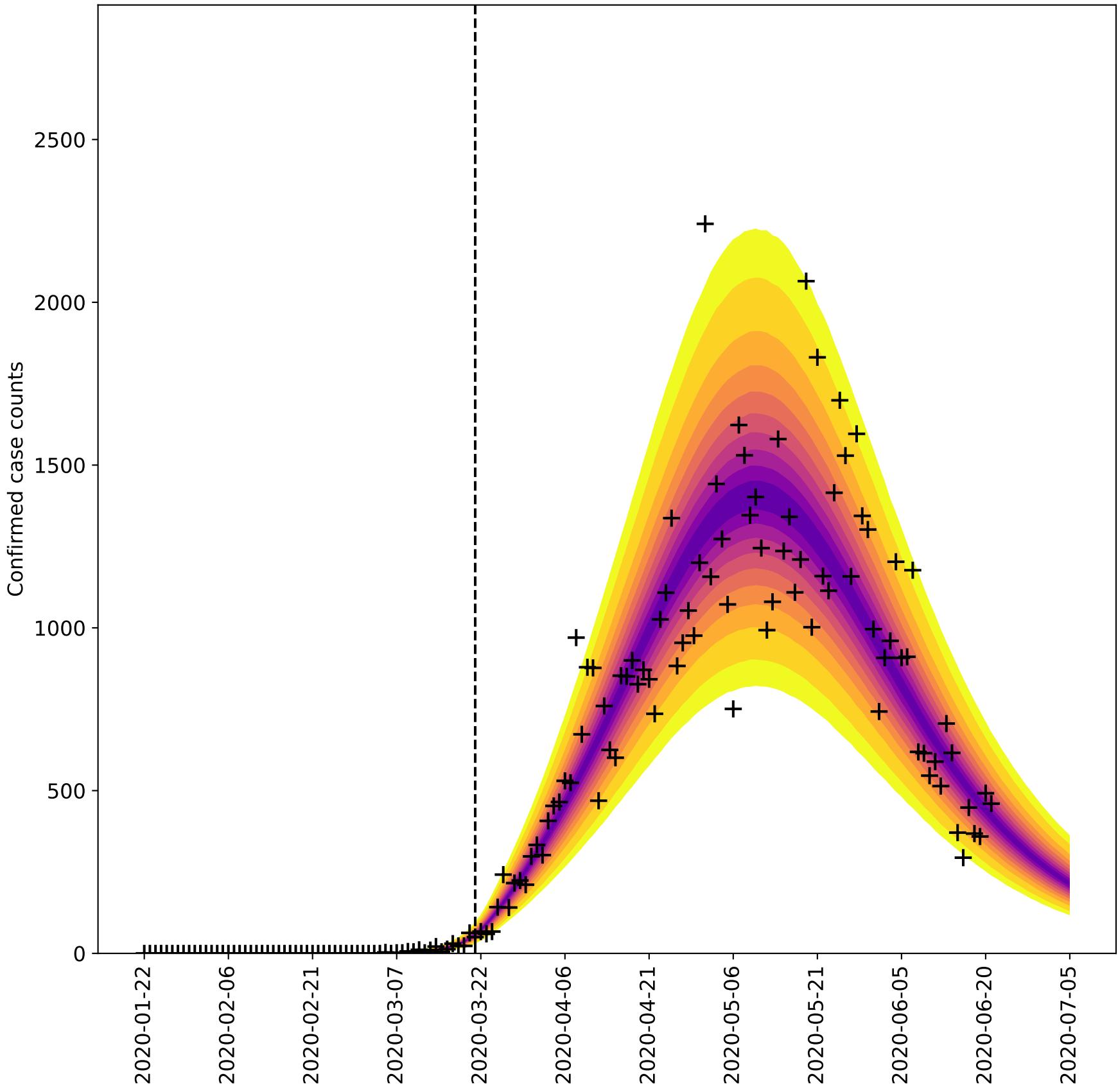
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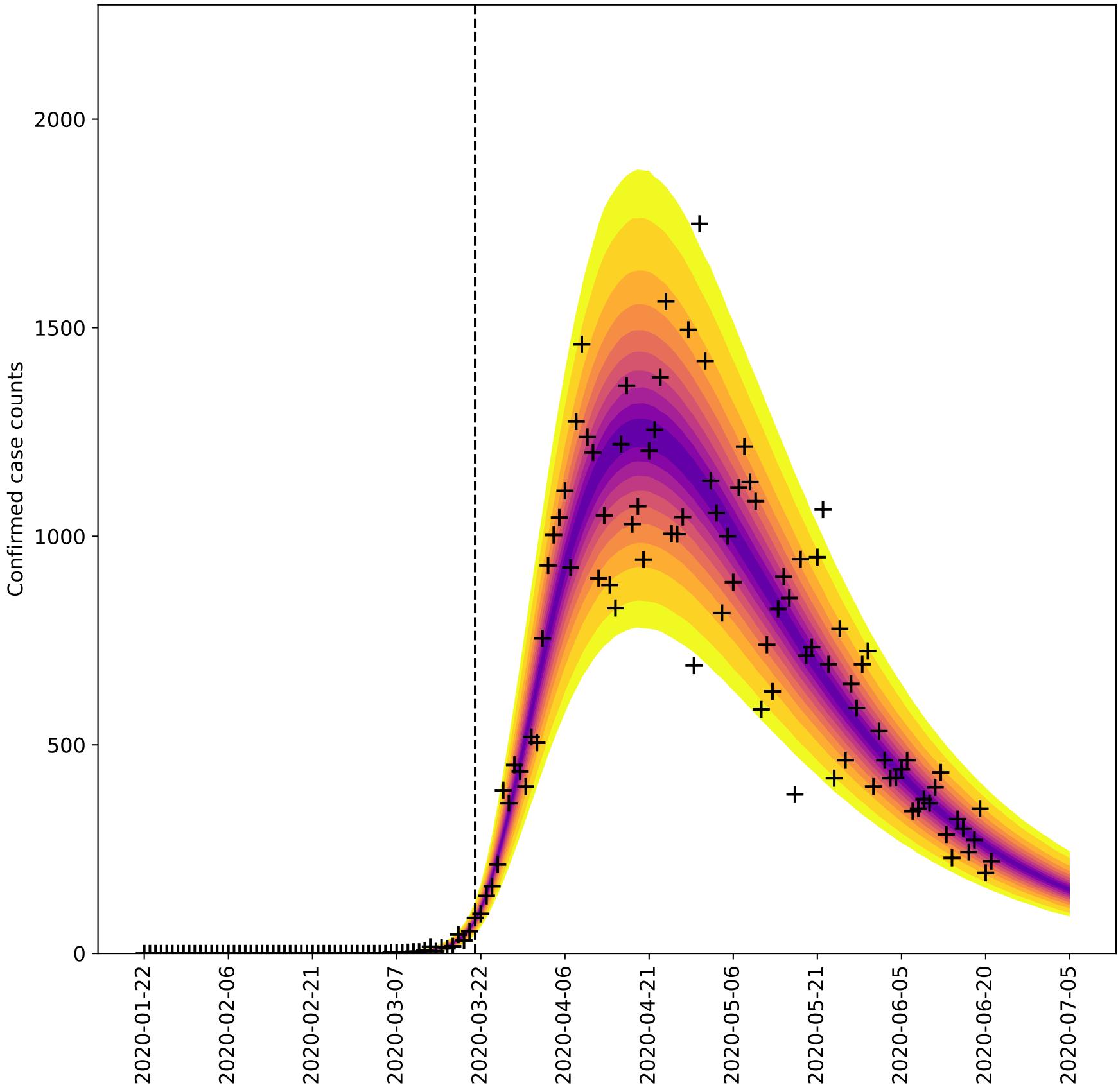
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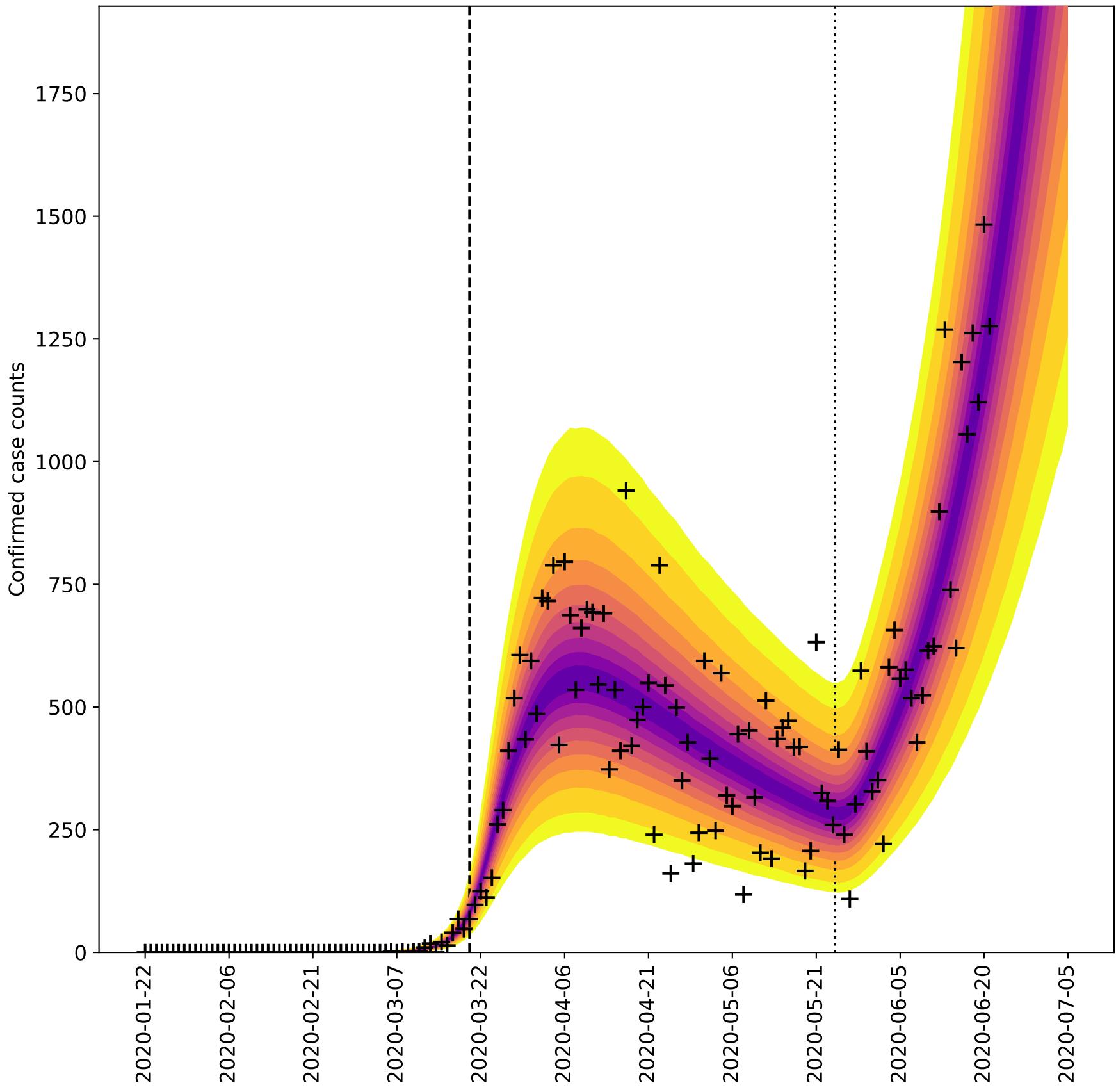
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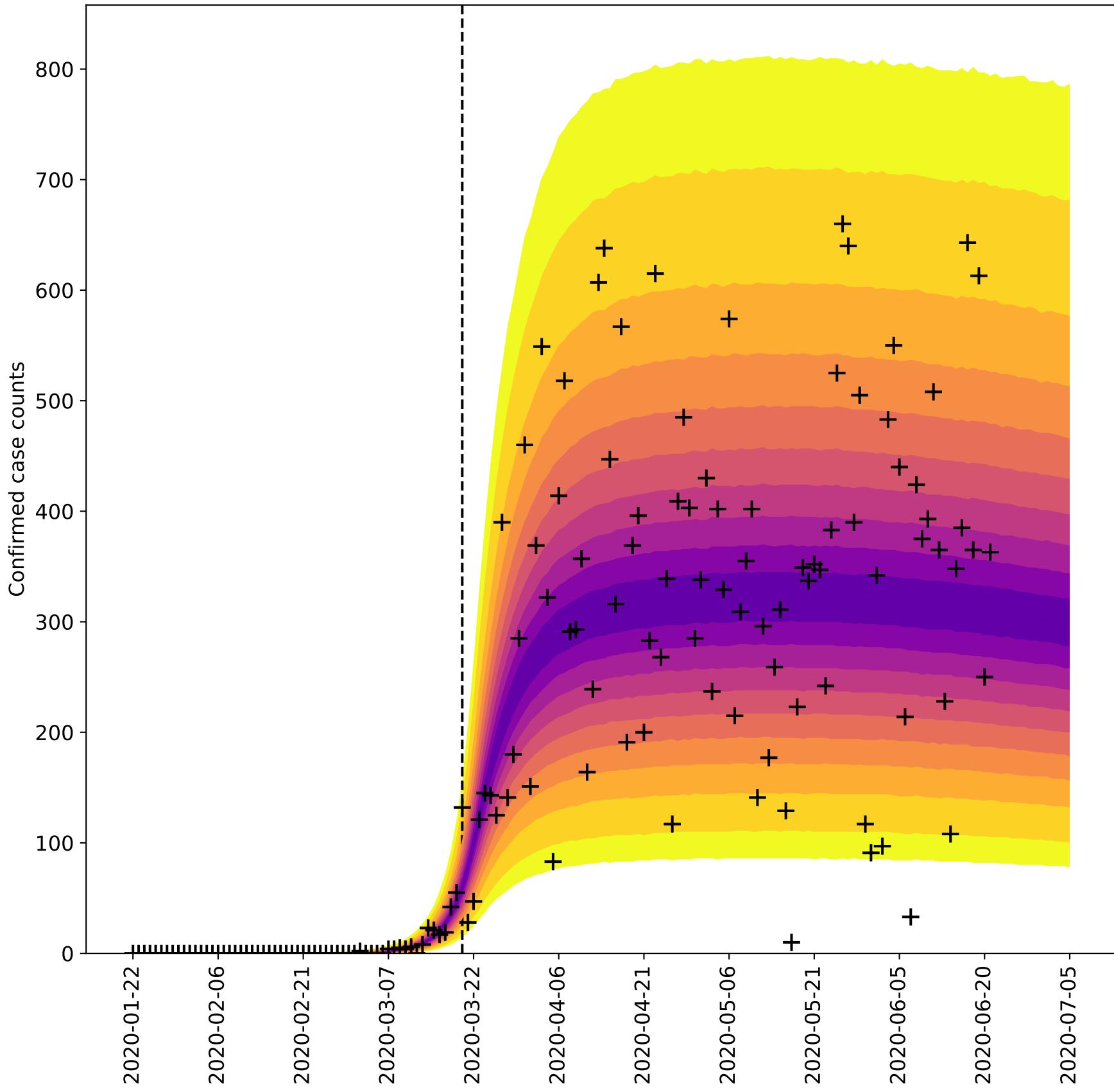
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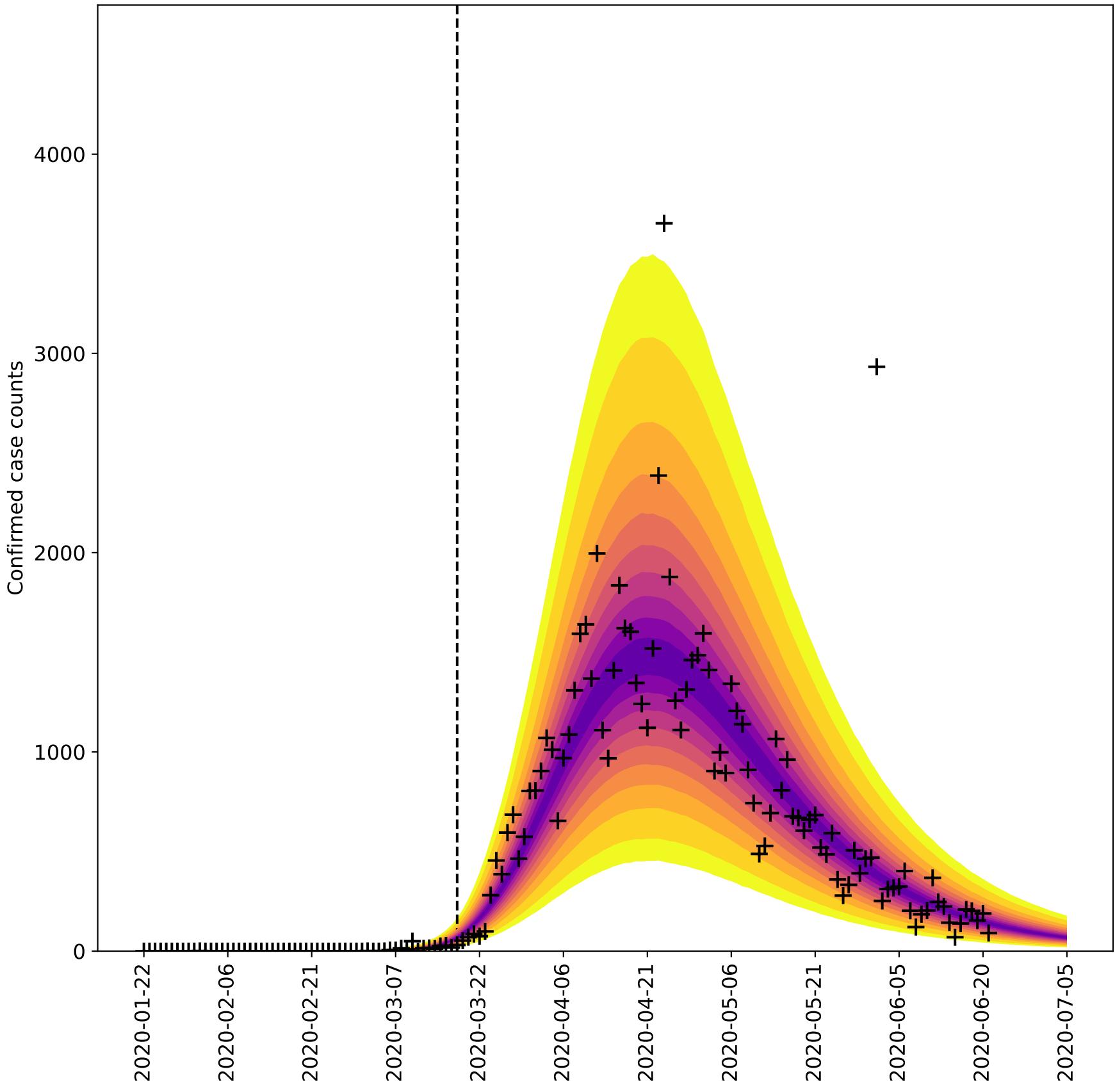
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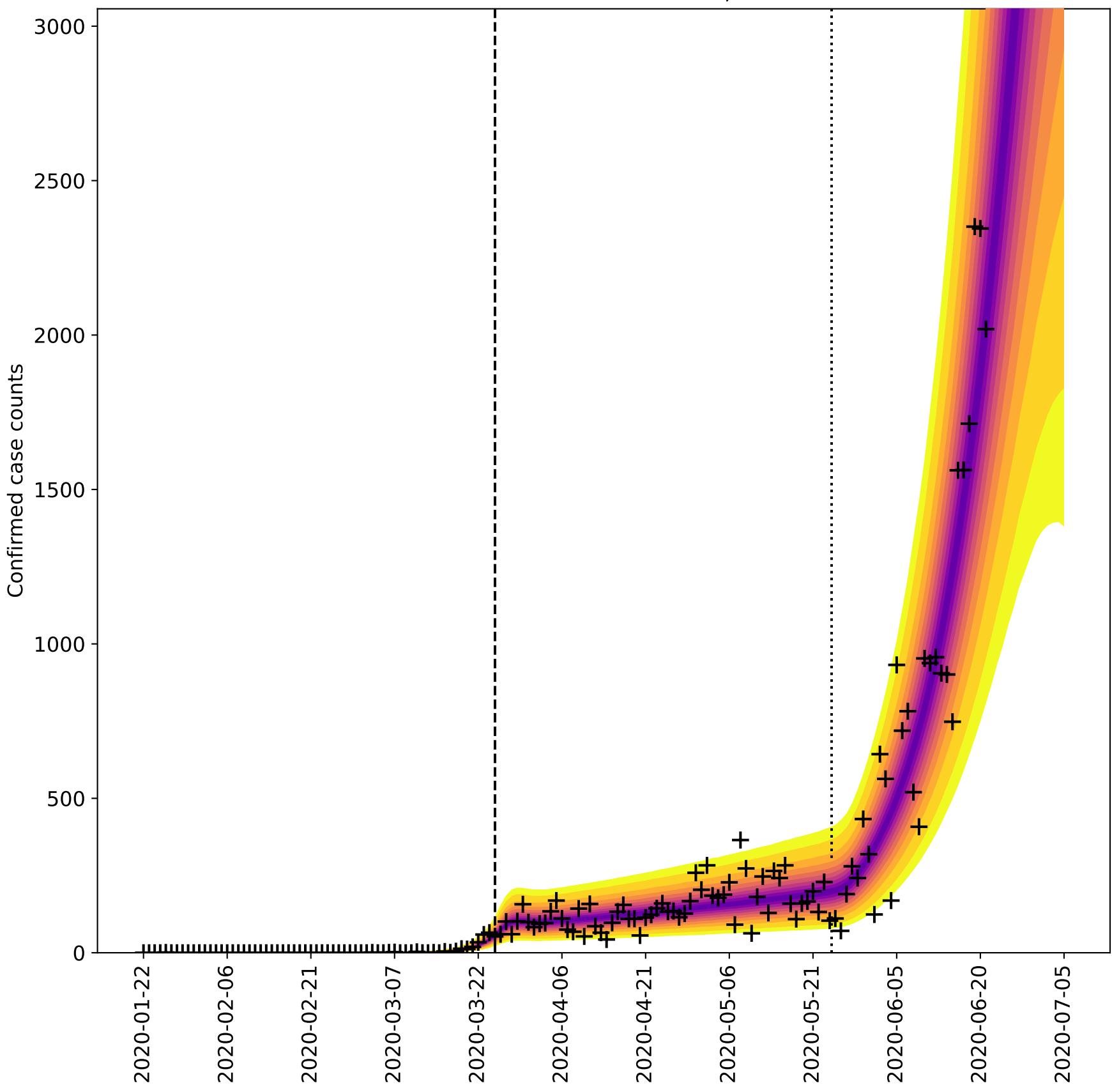
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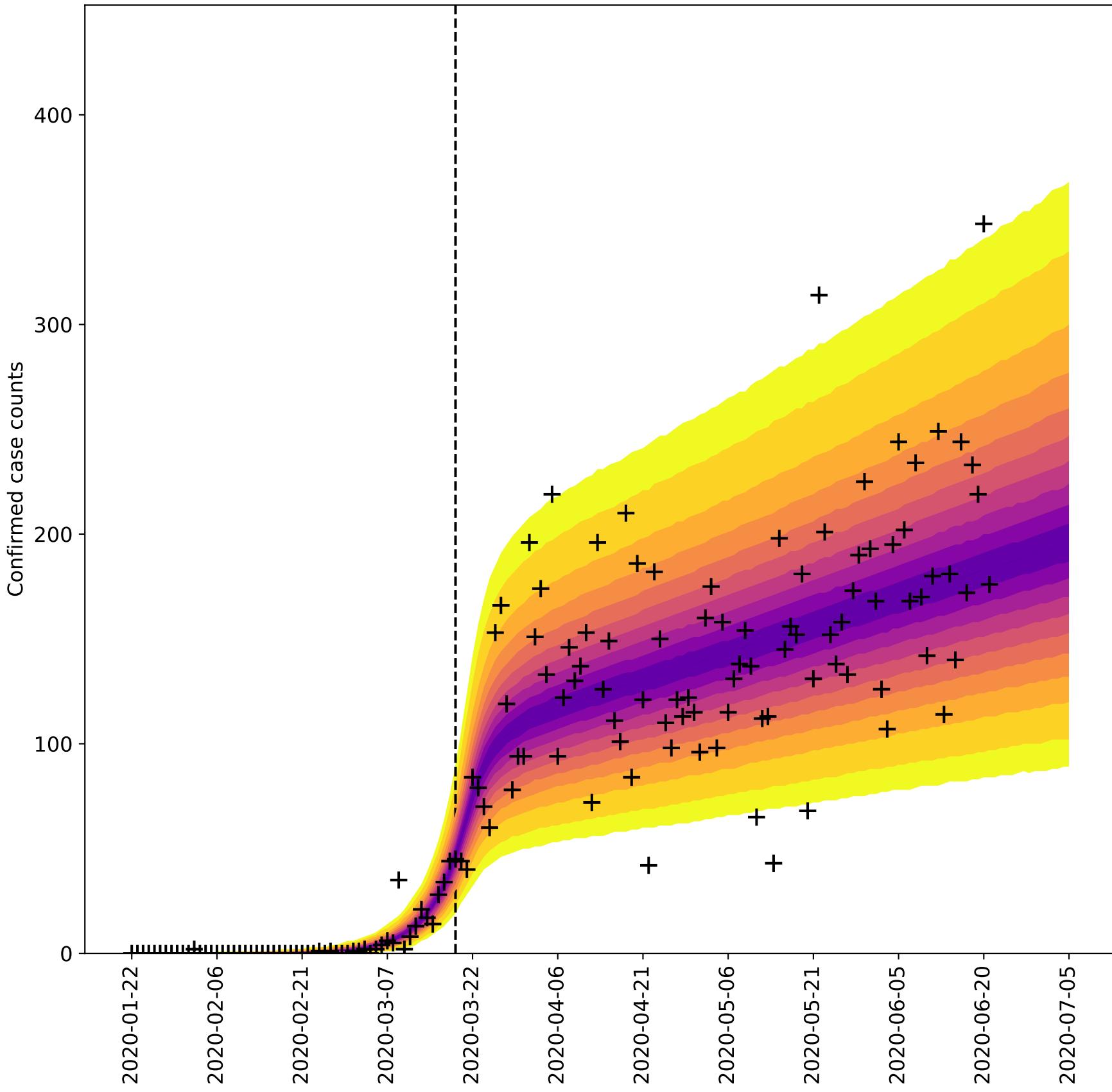
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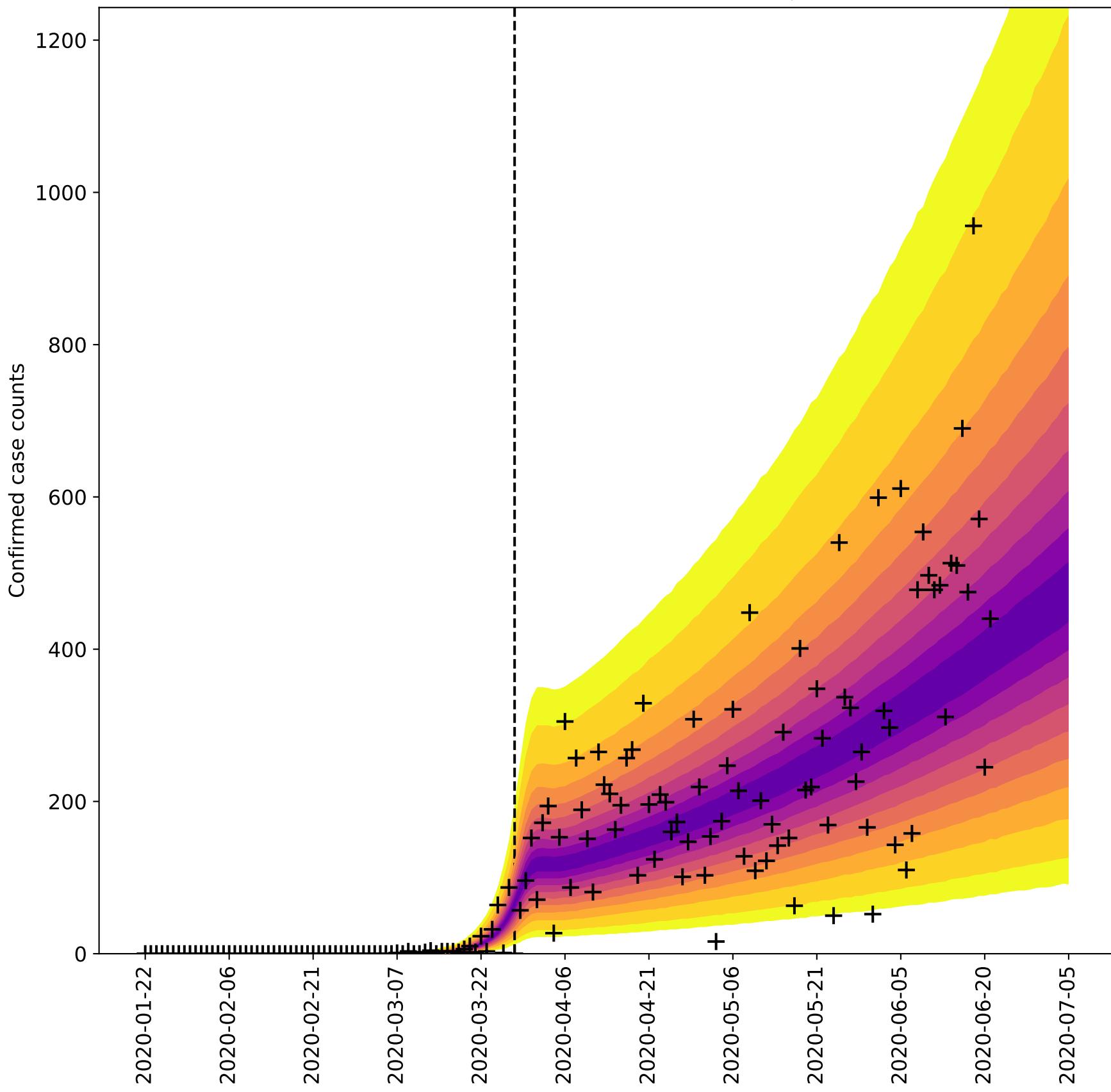
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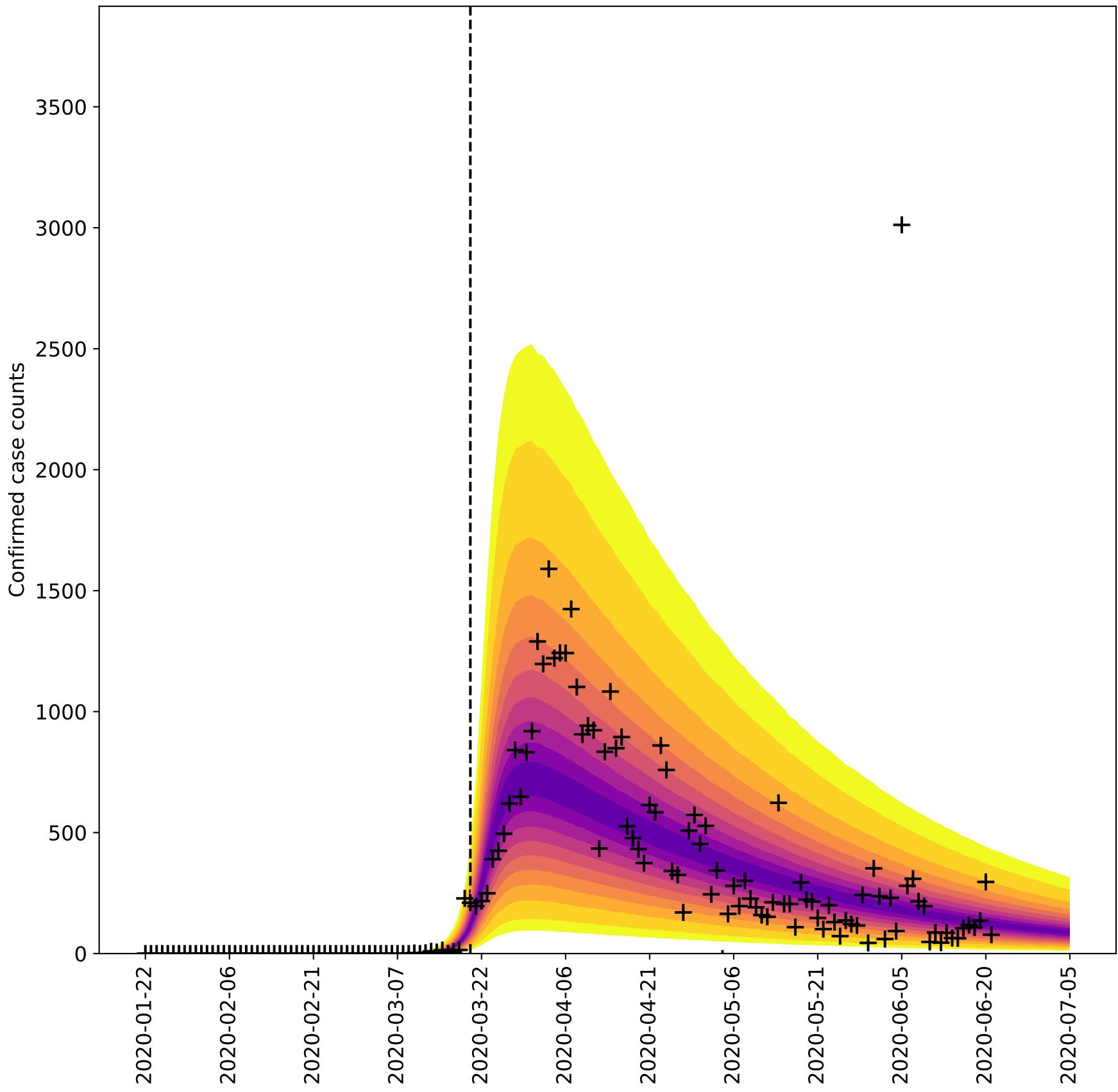
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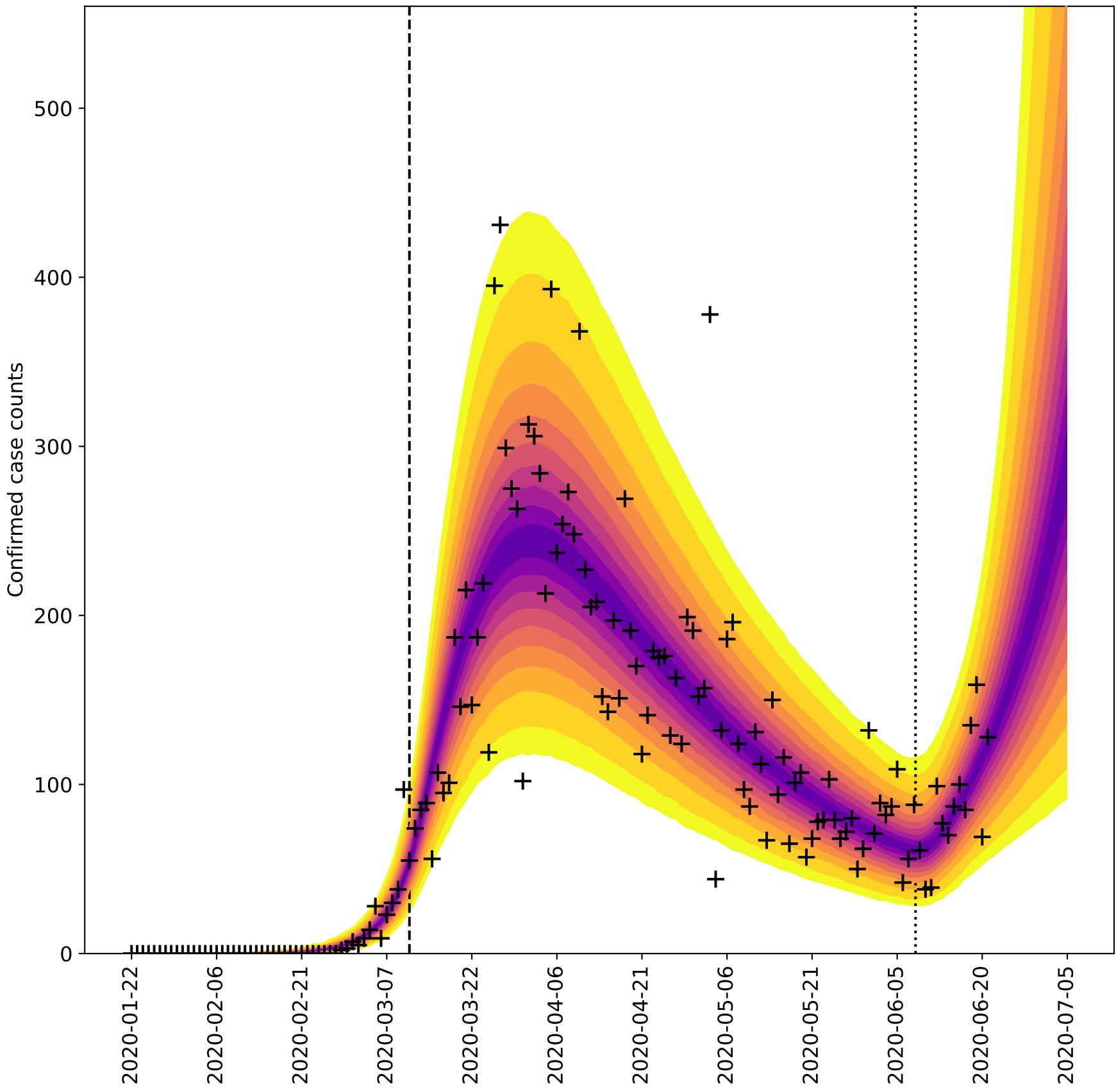
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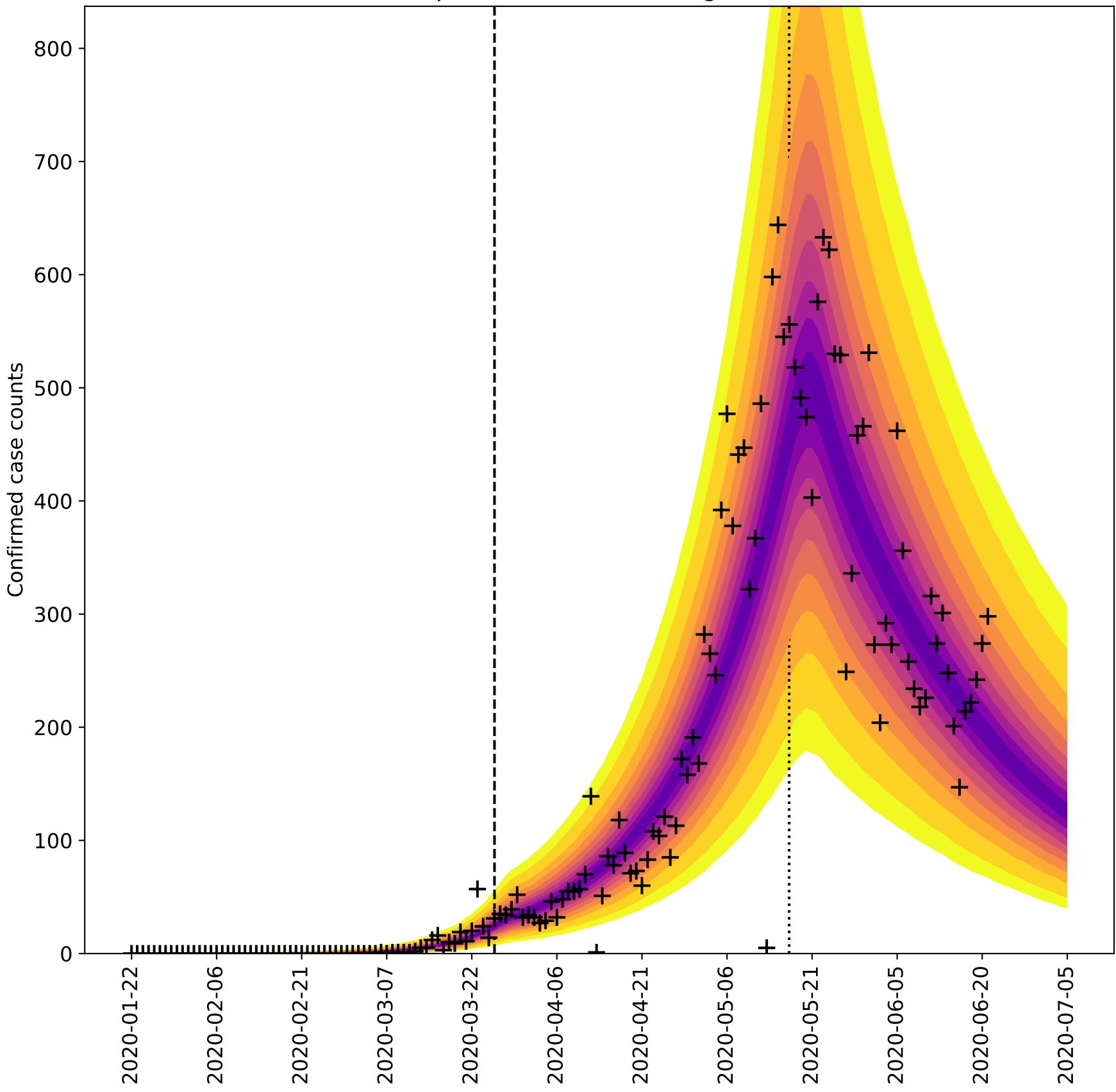
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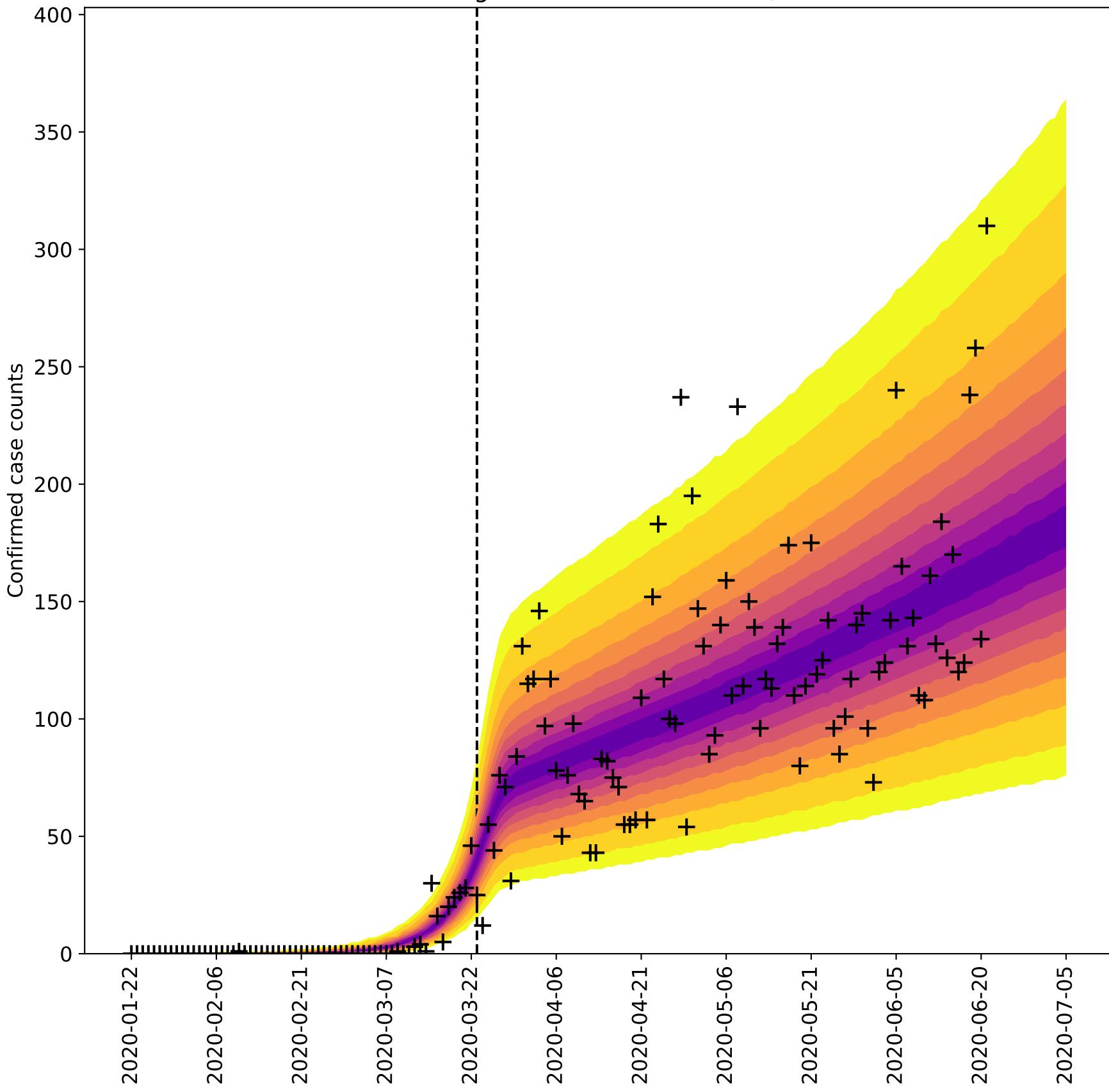
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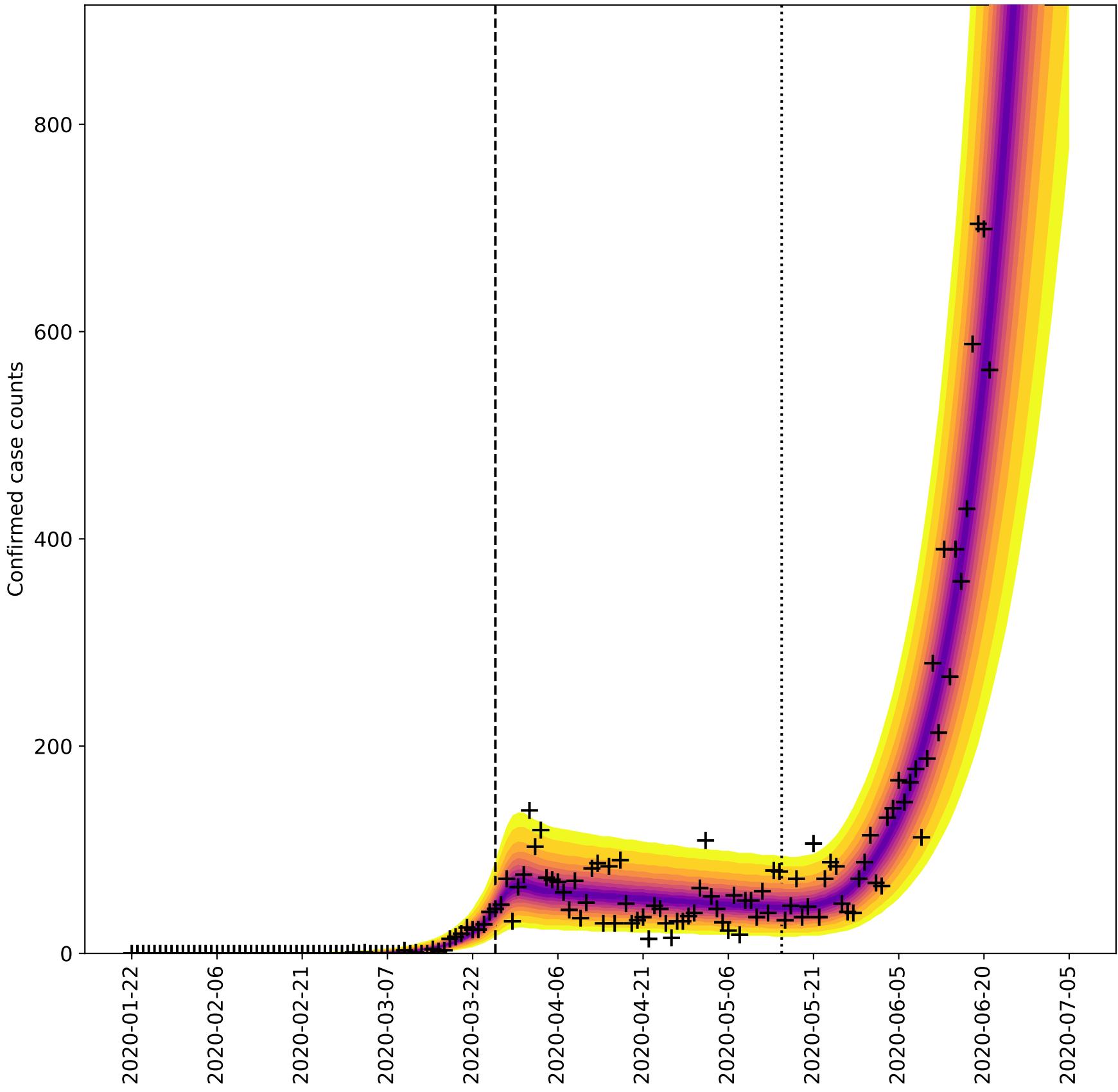
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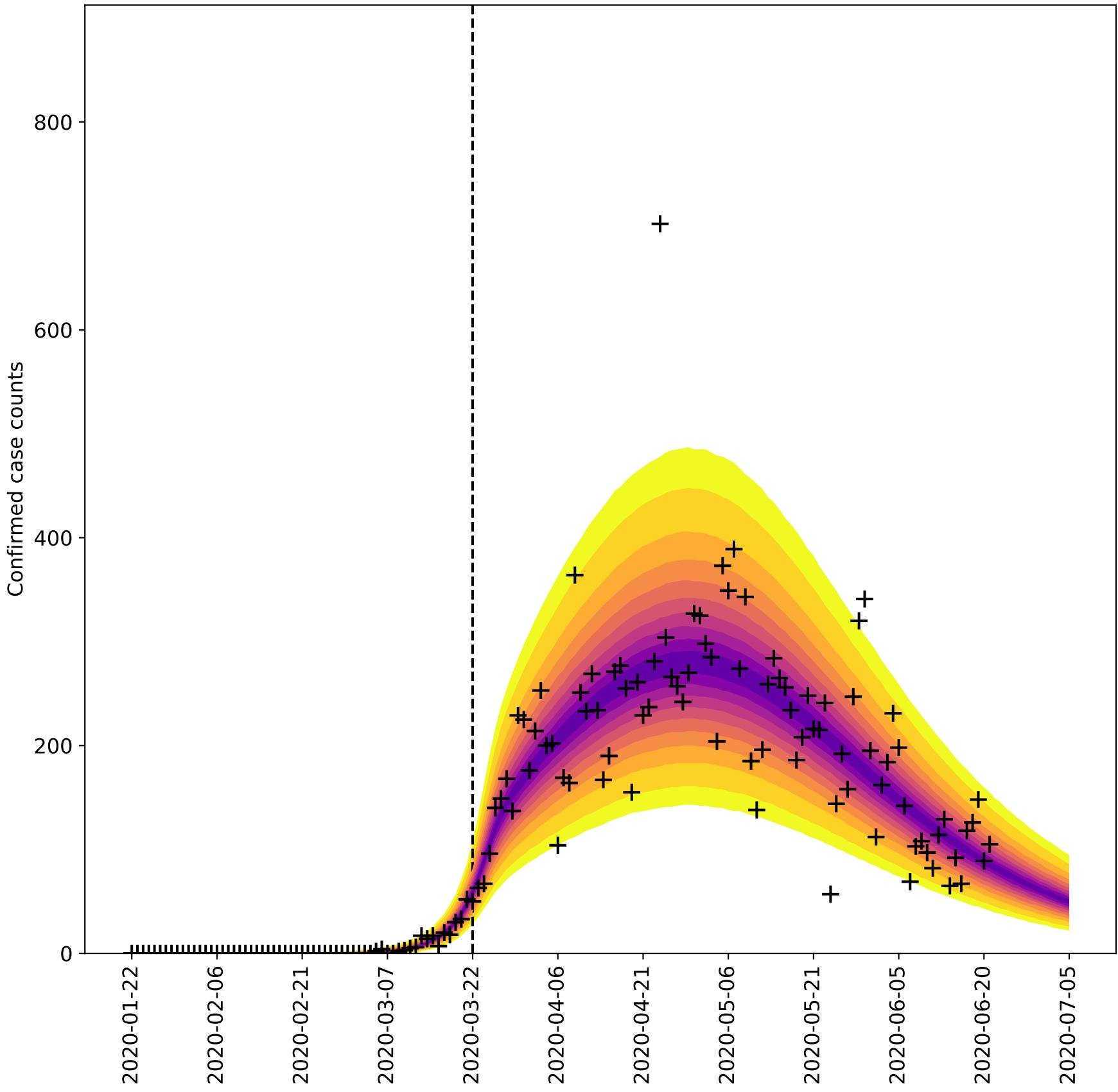
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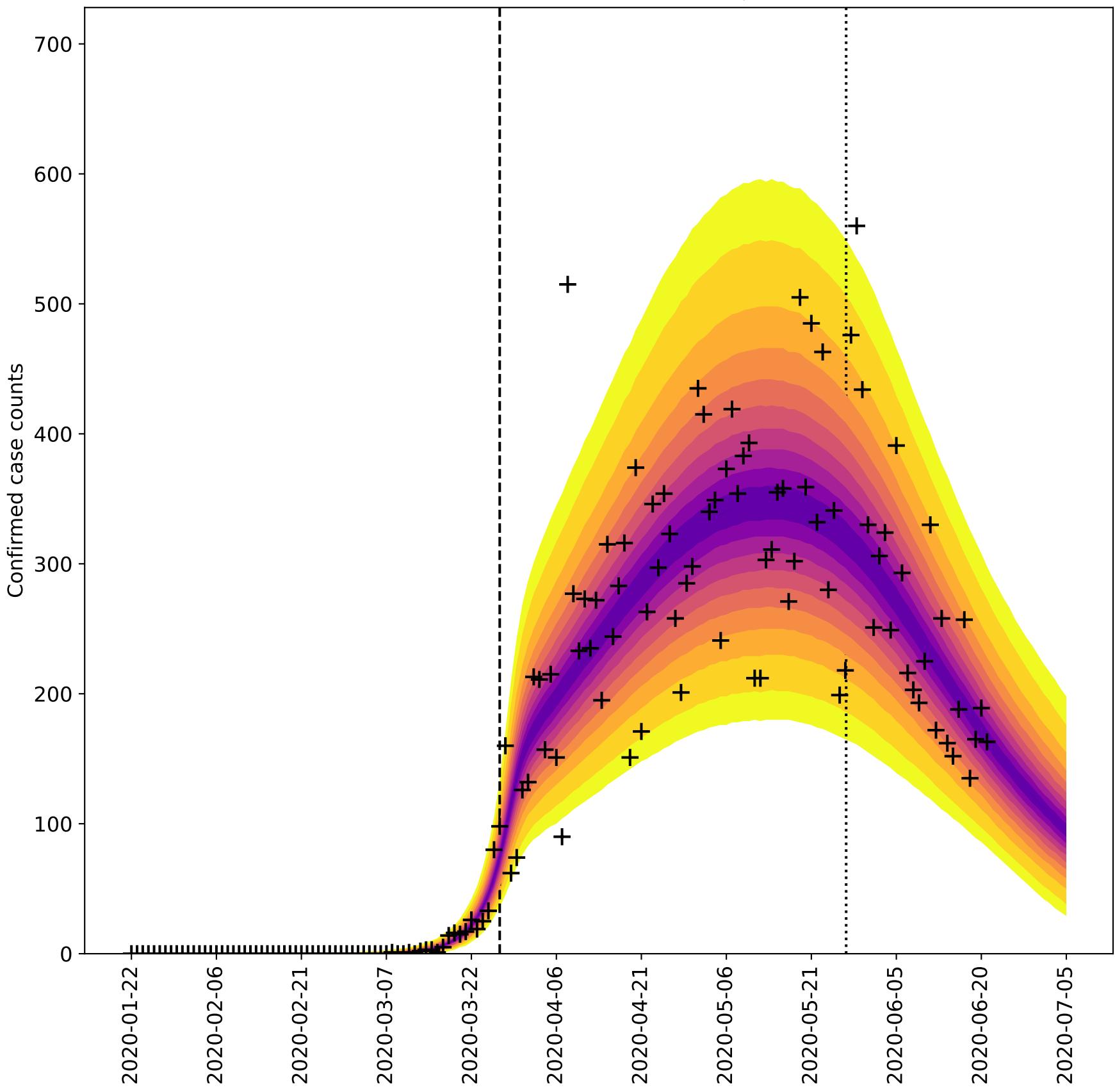
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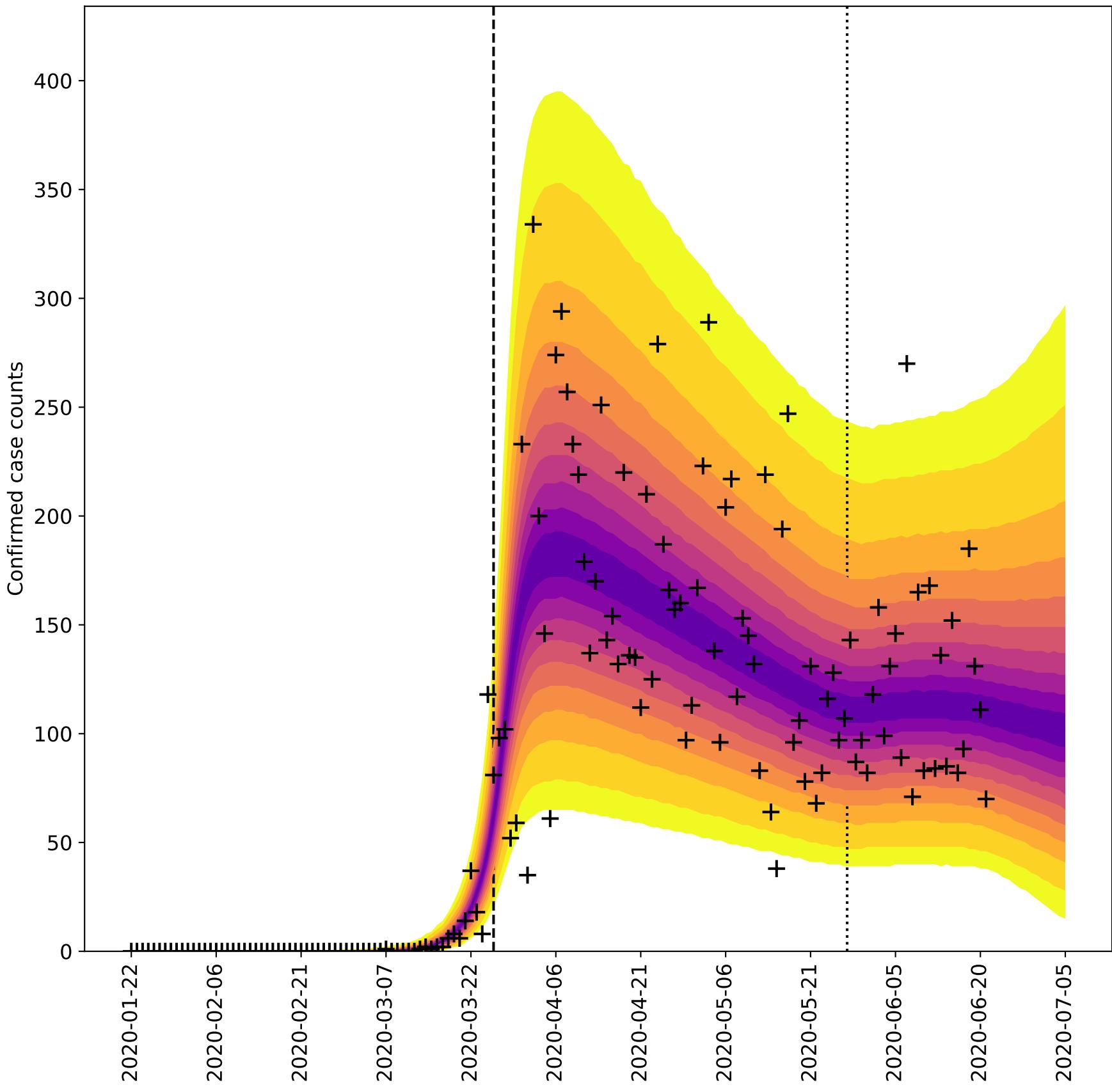
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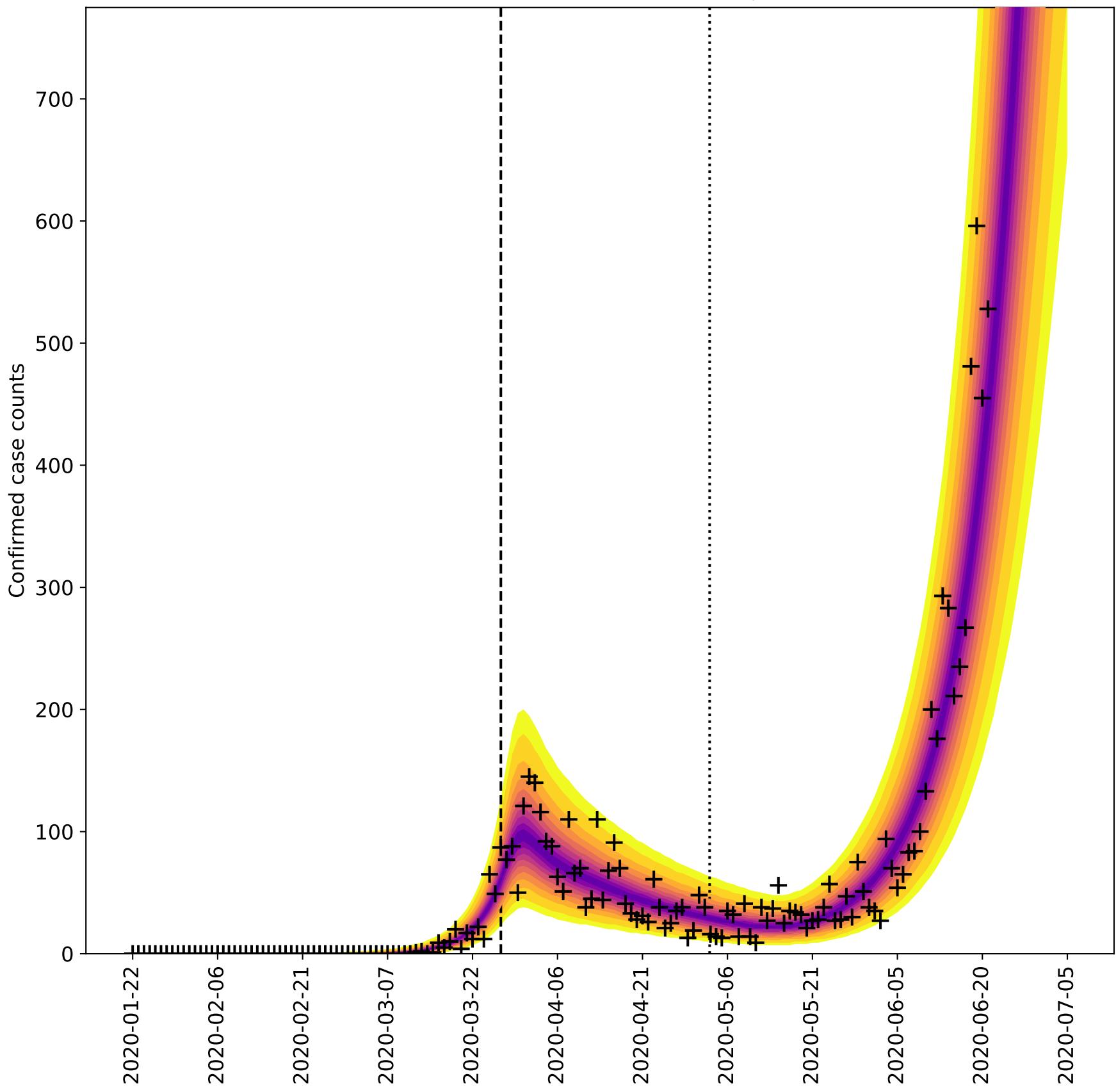
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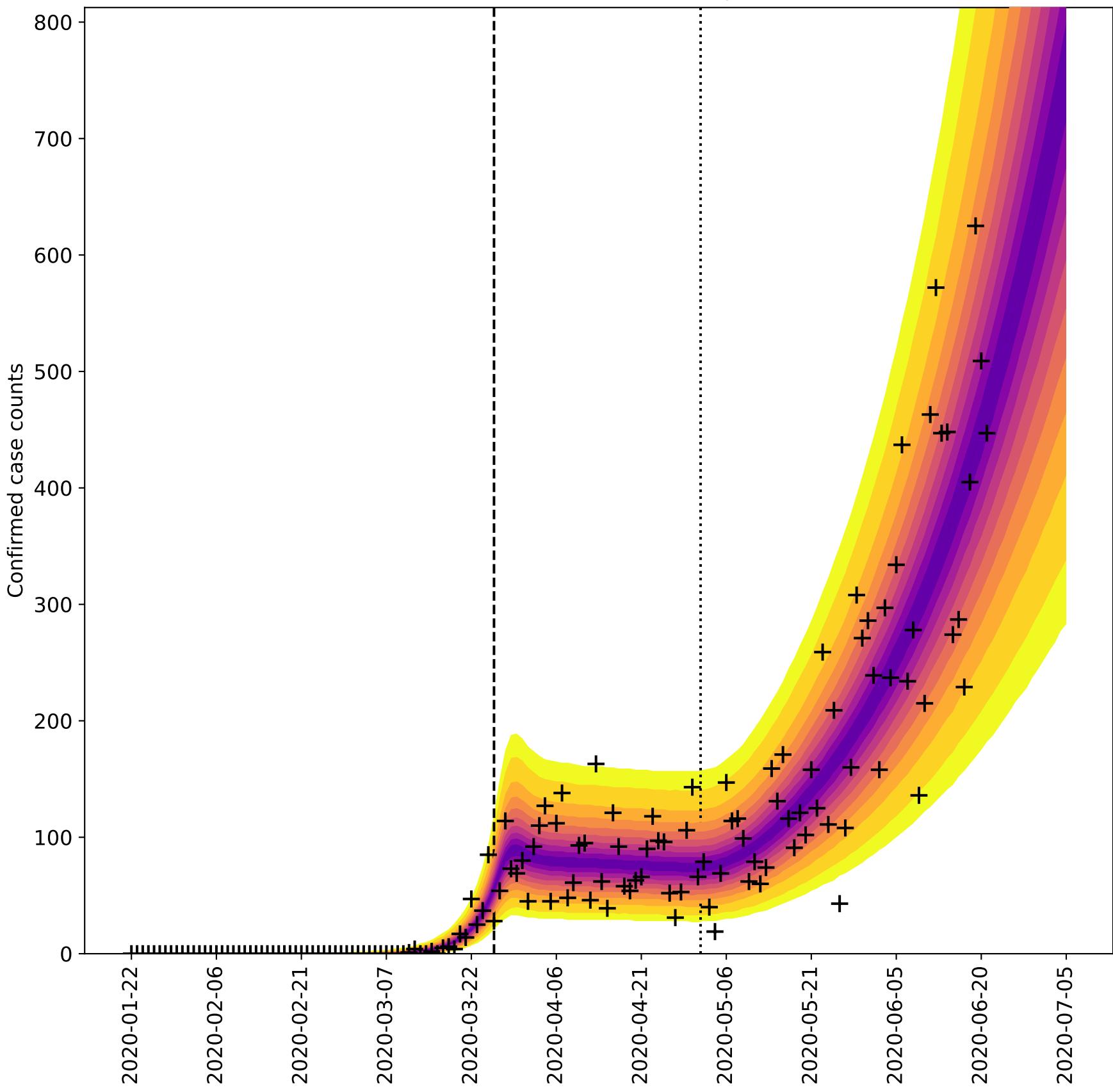
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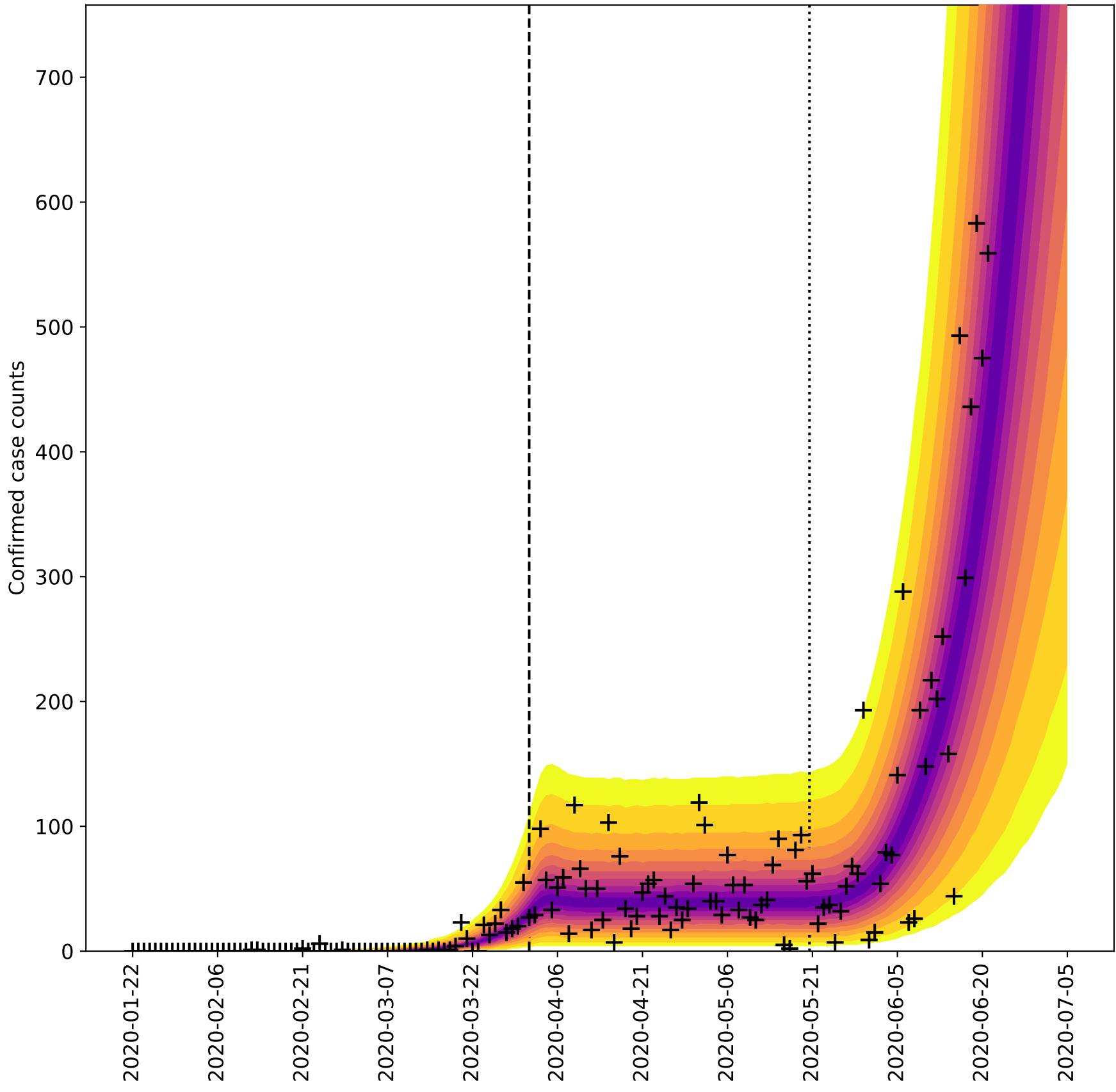
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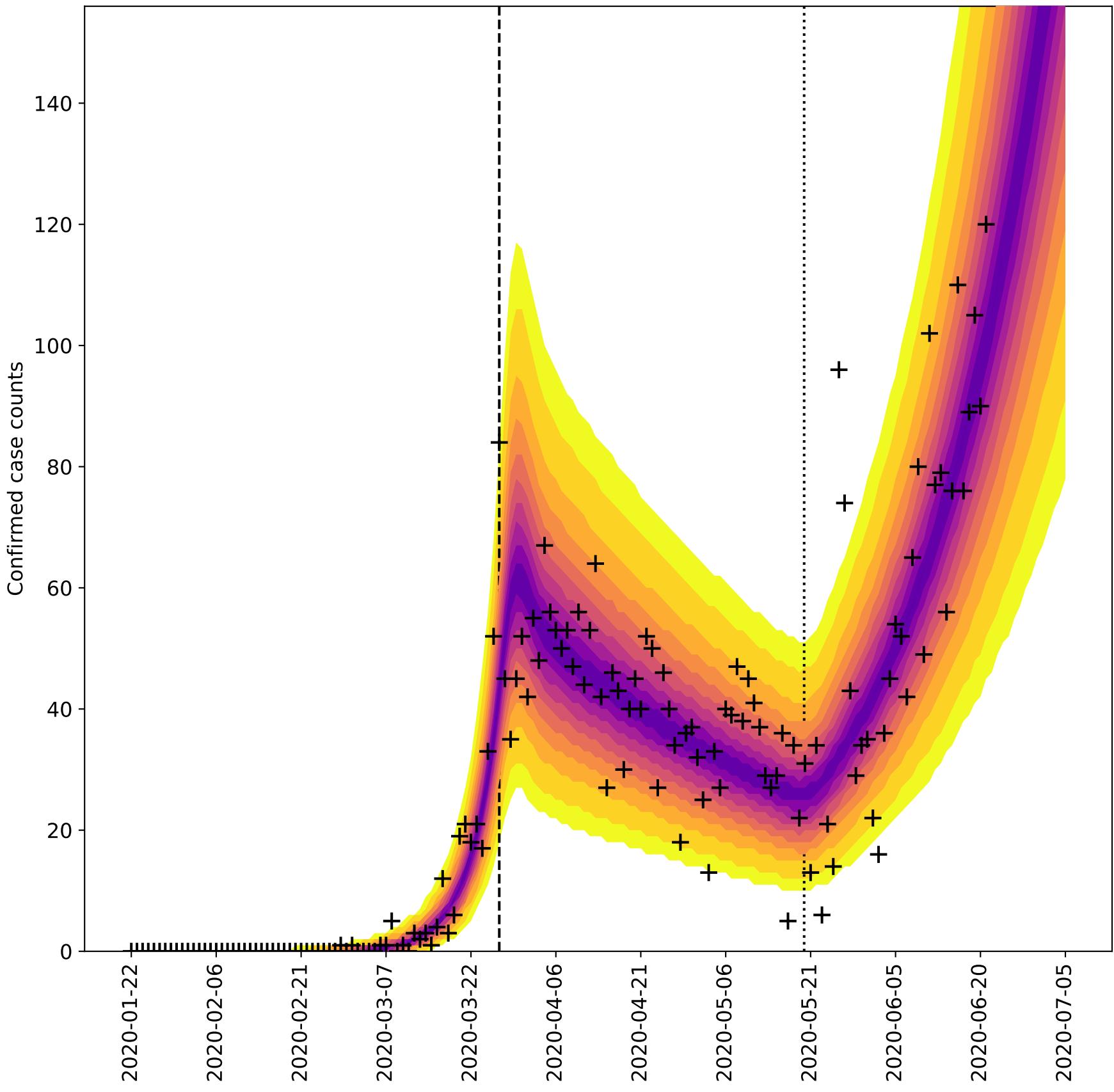
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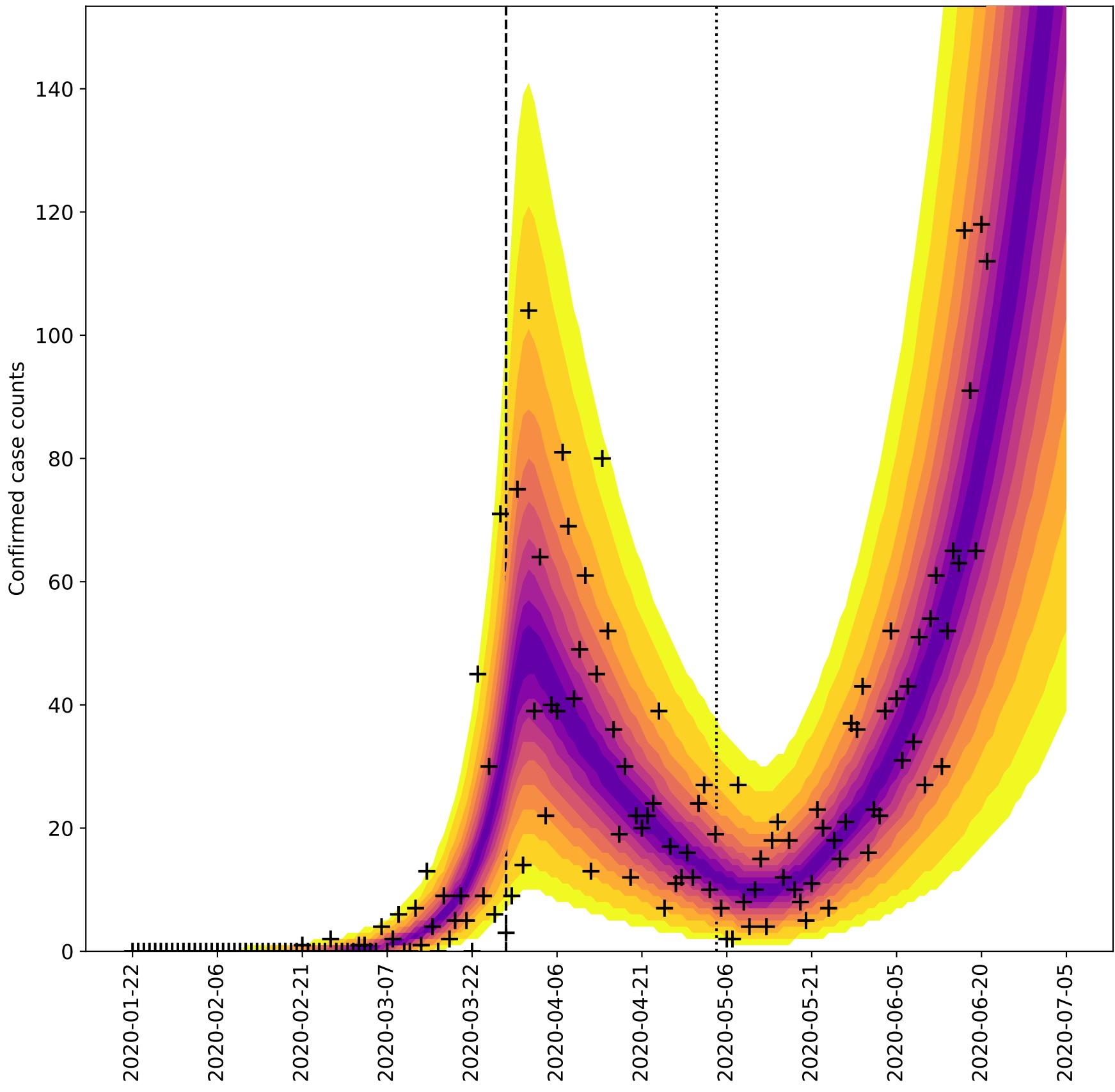
San Antonio-New Braunfels, TX



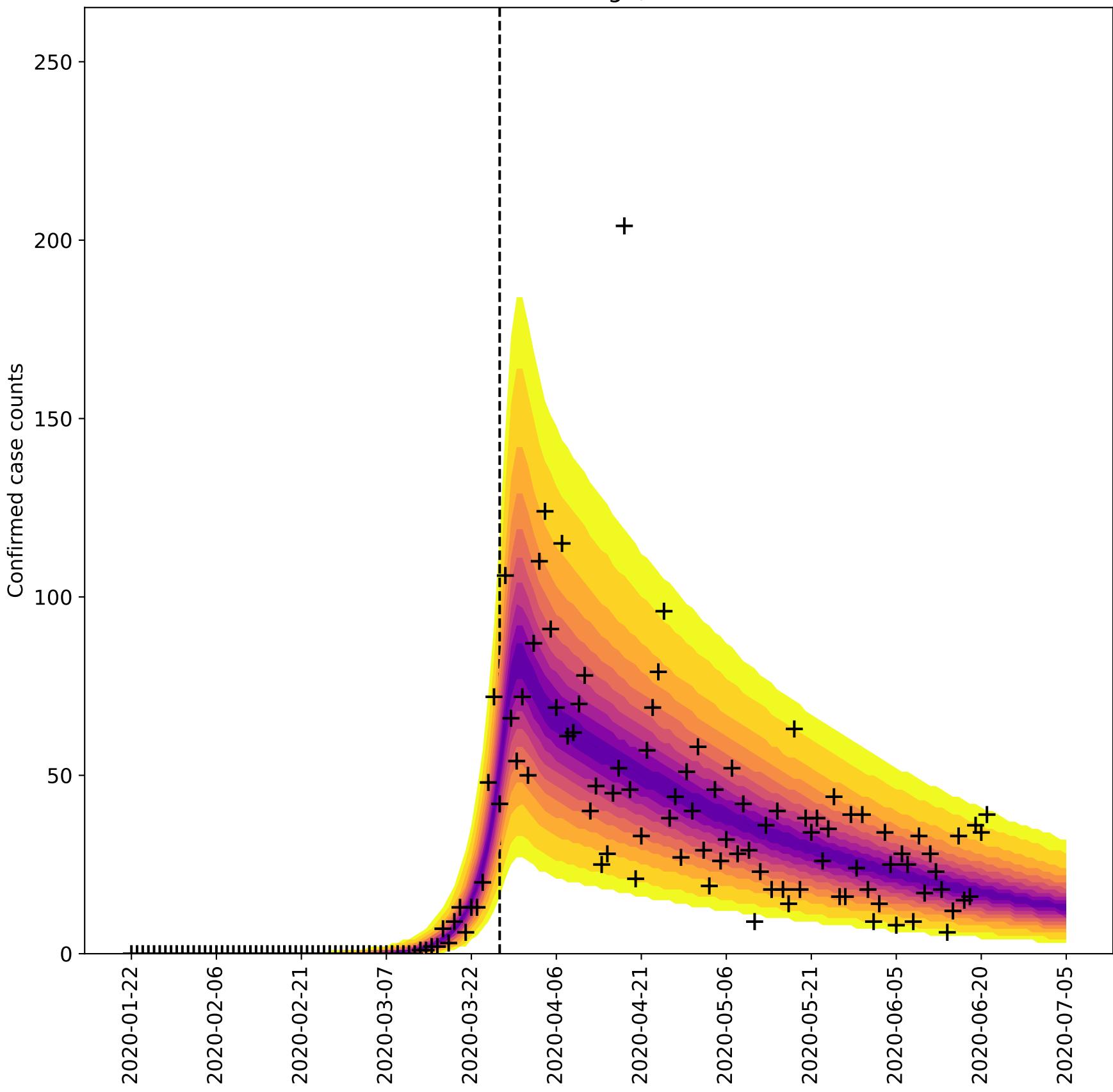
Portland-Vancouver-Hillsboro, OR-WA



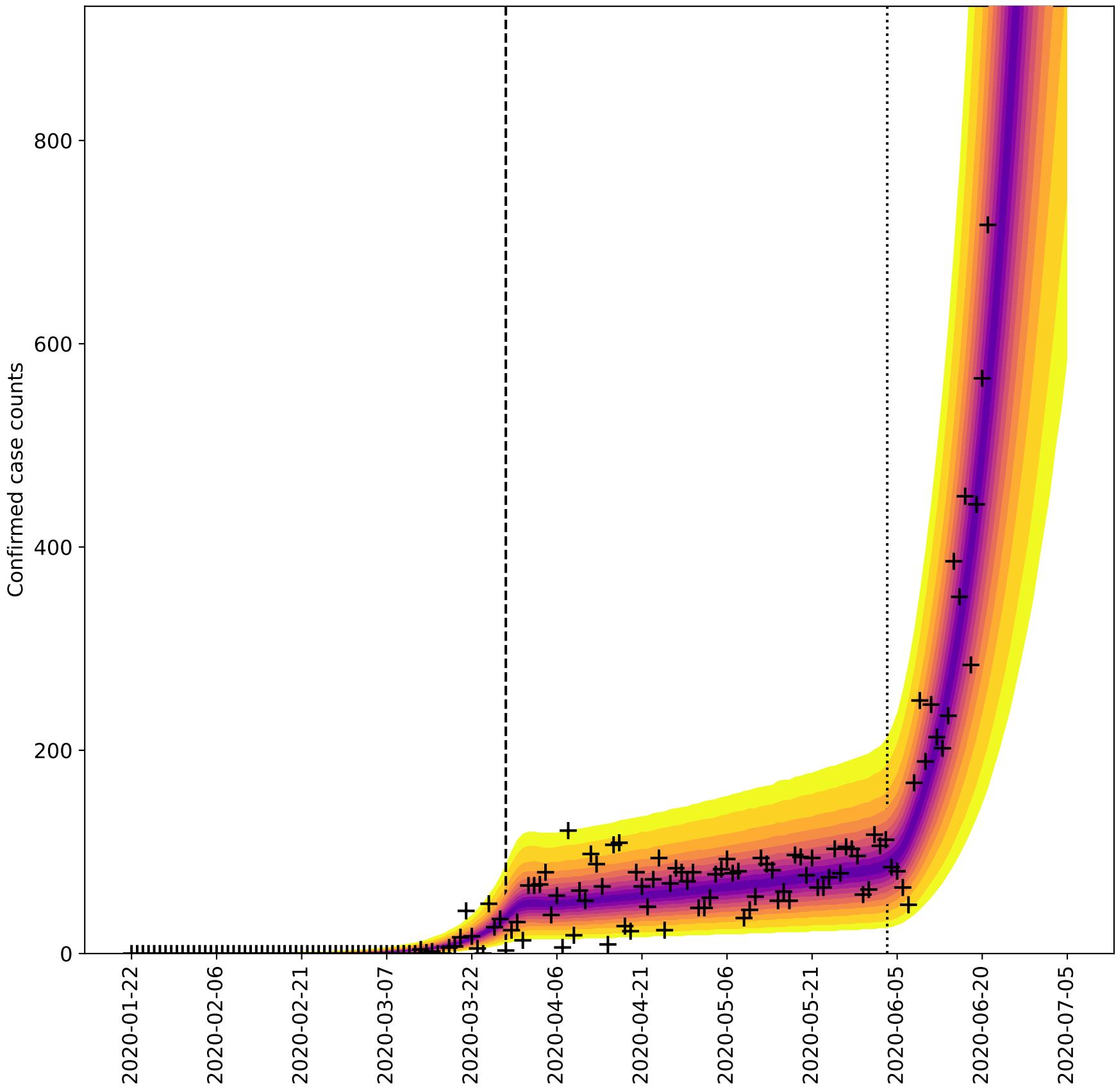
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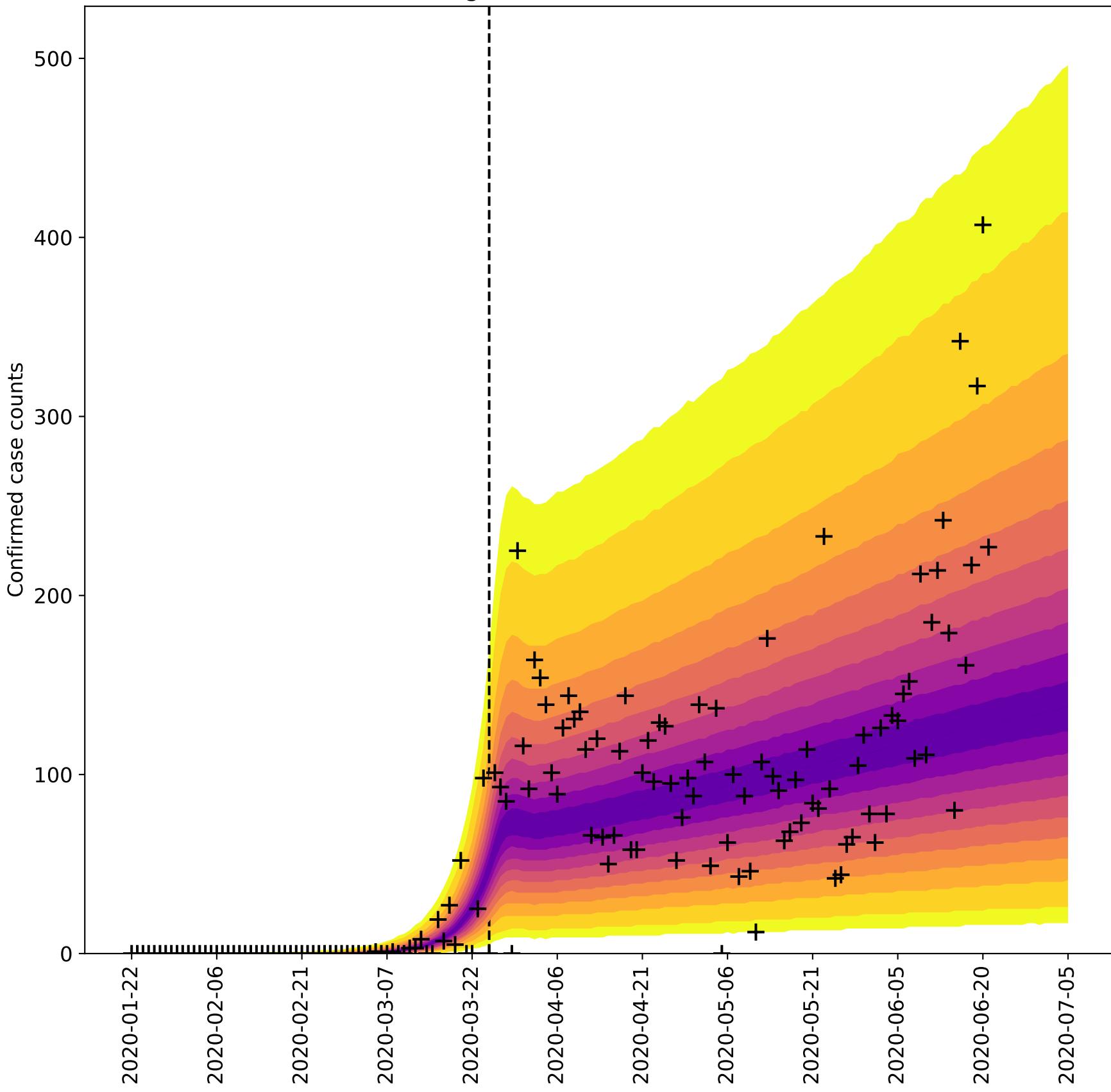
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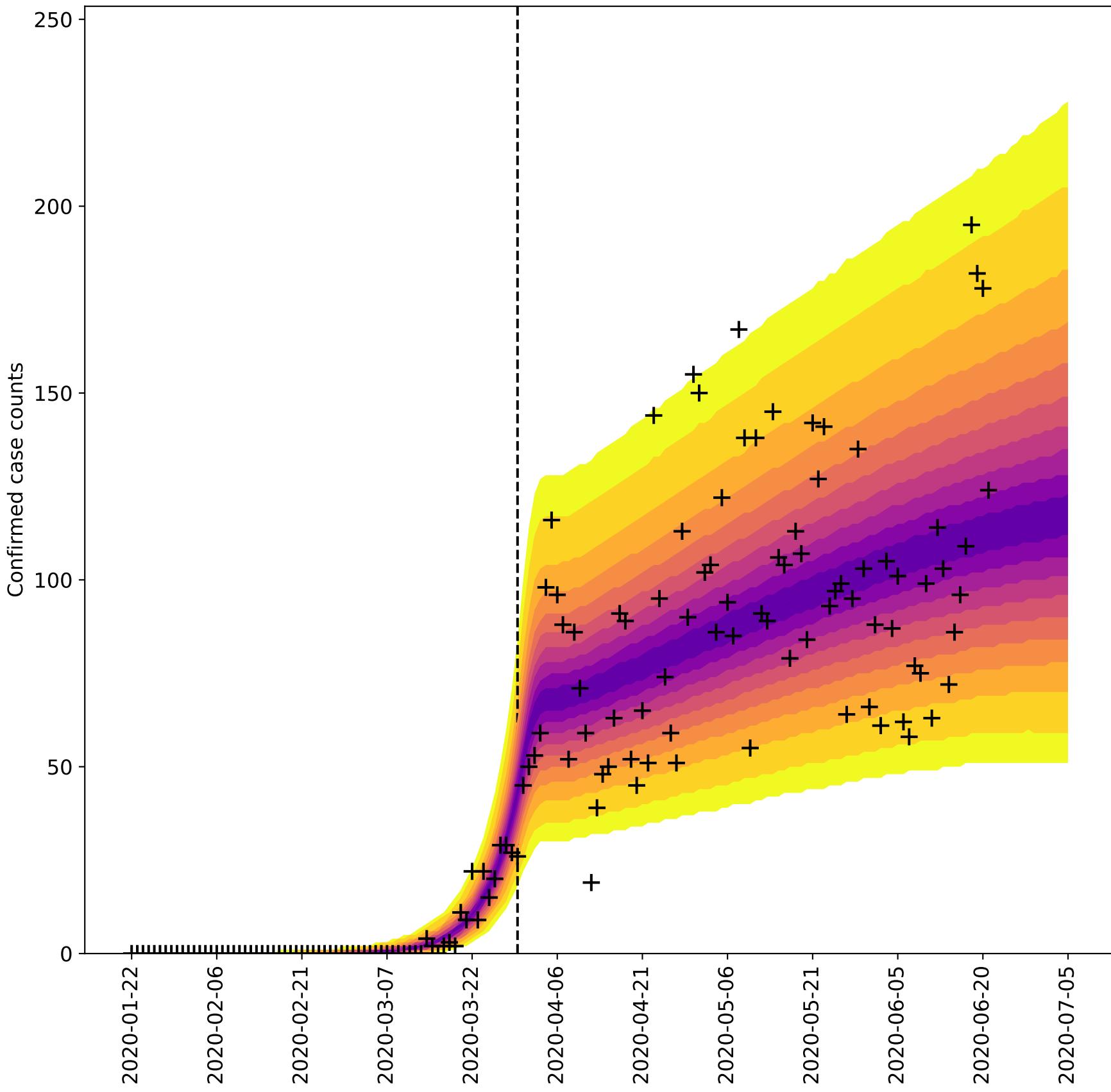
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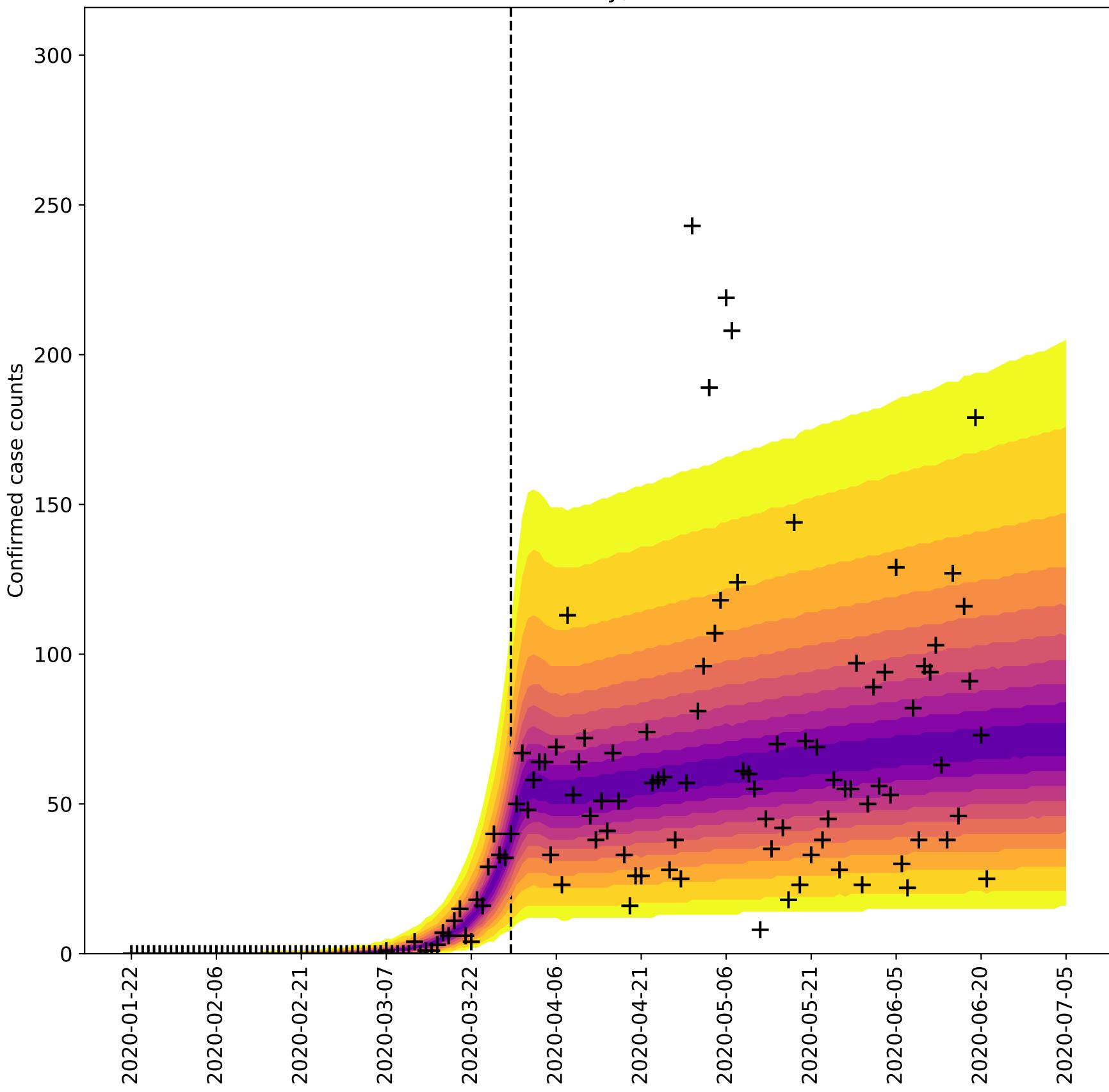
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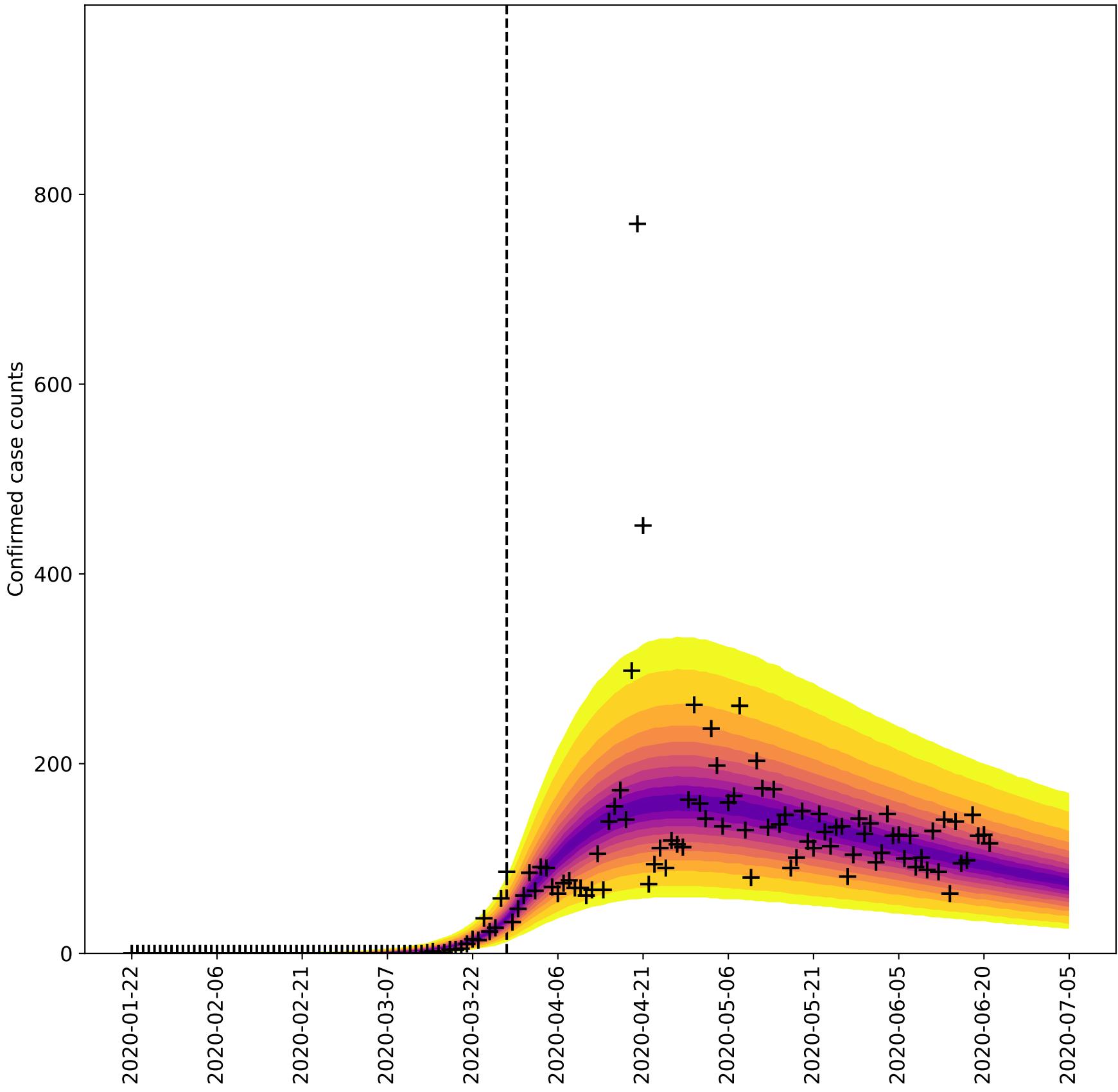
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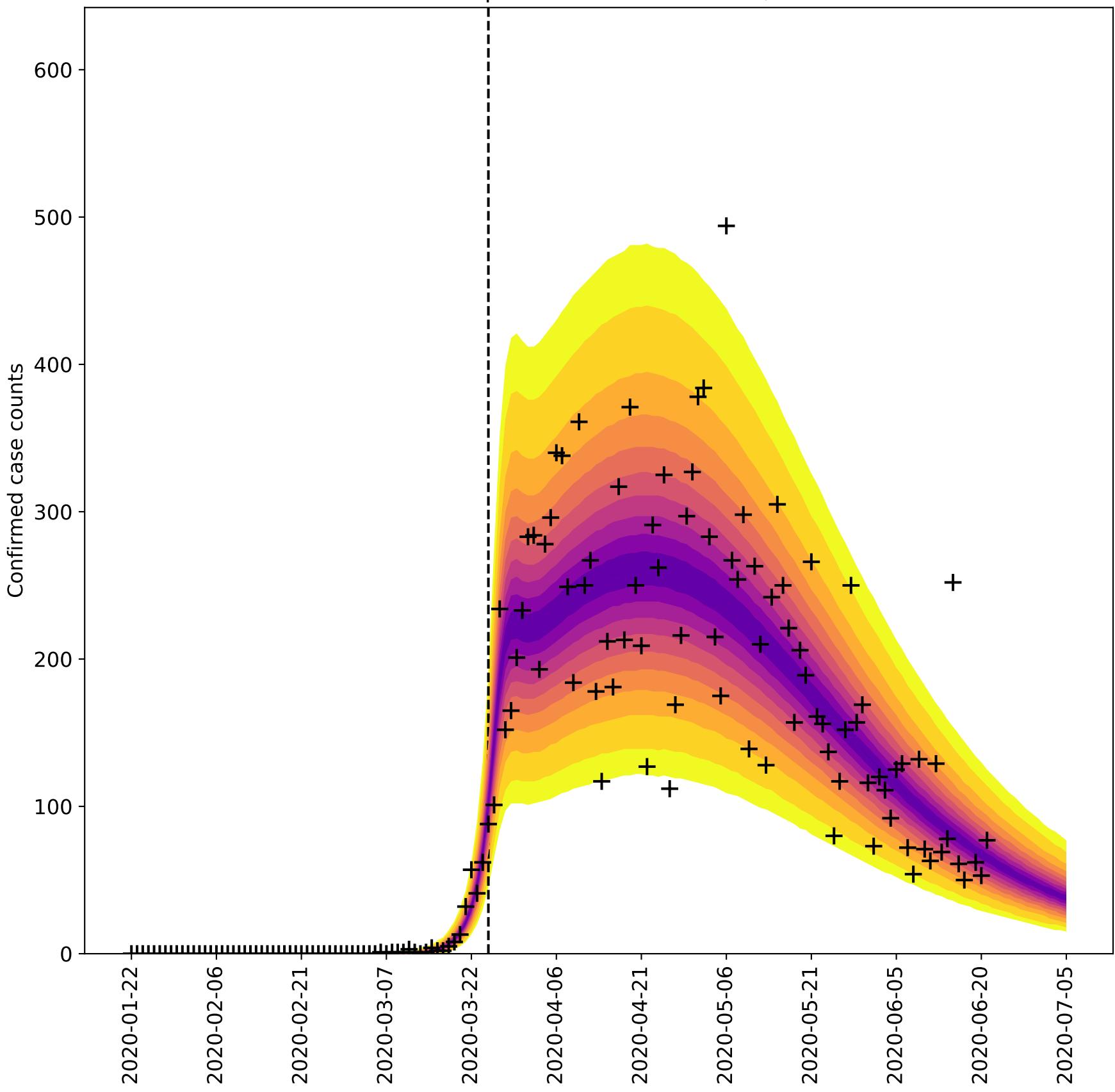
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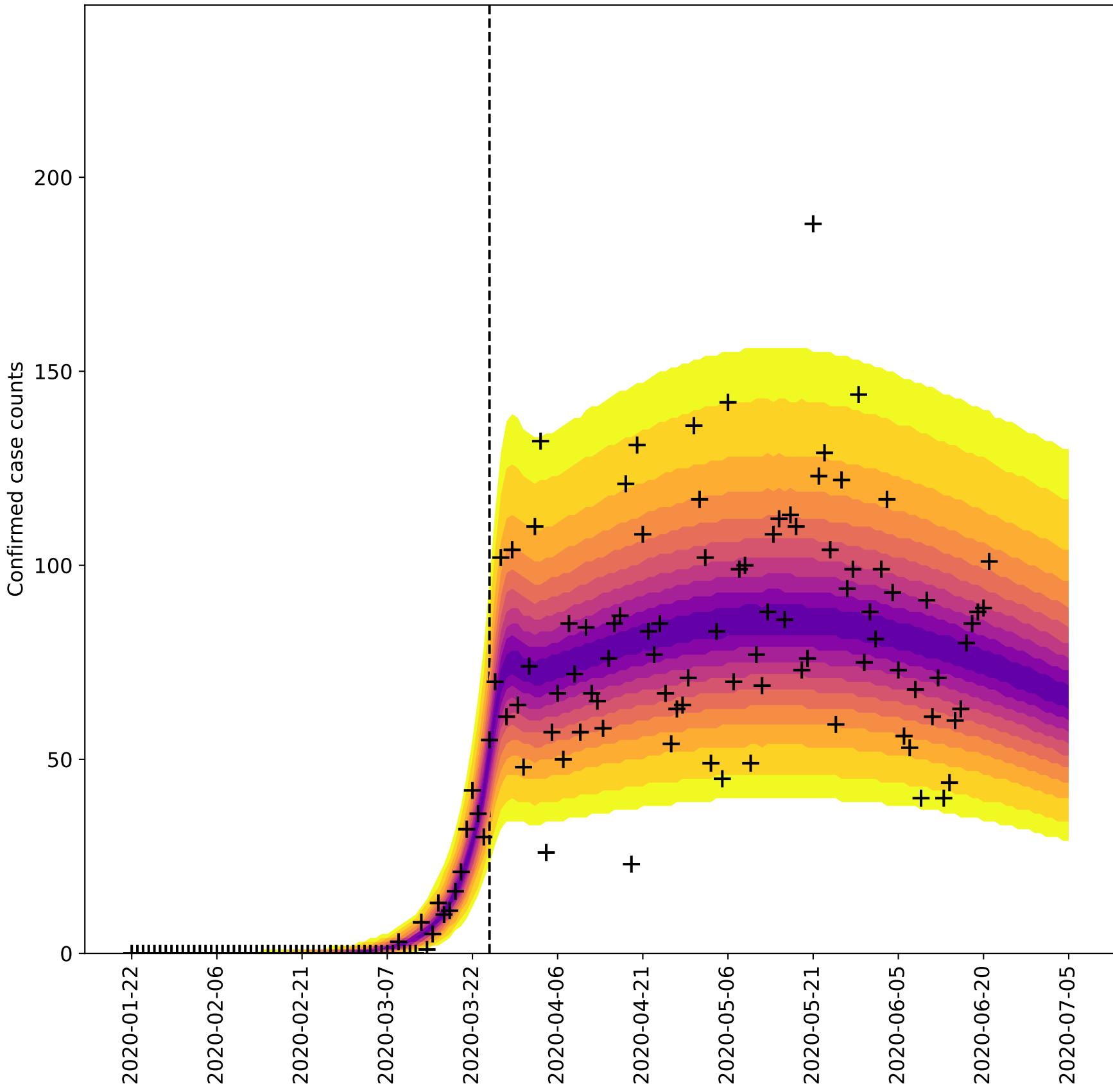
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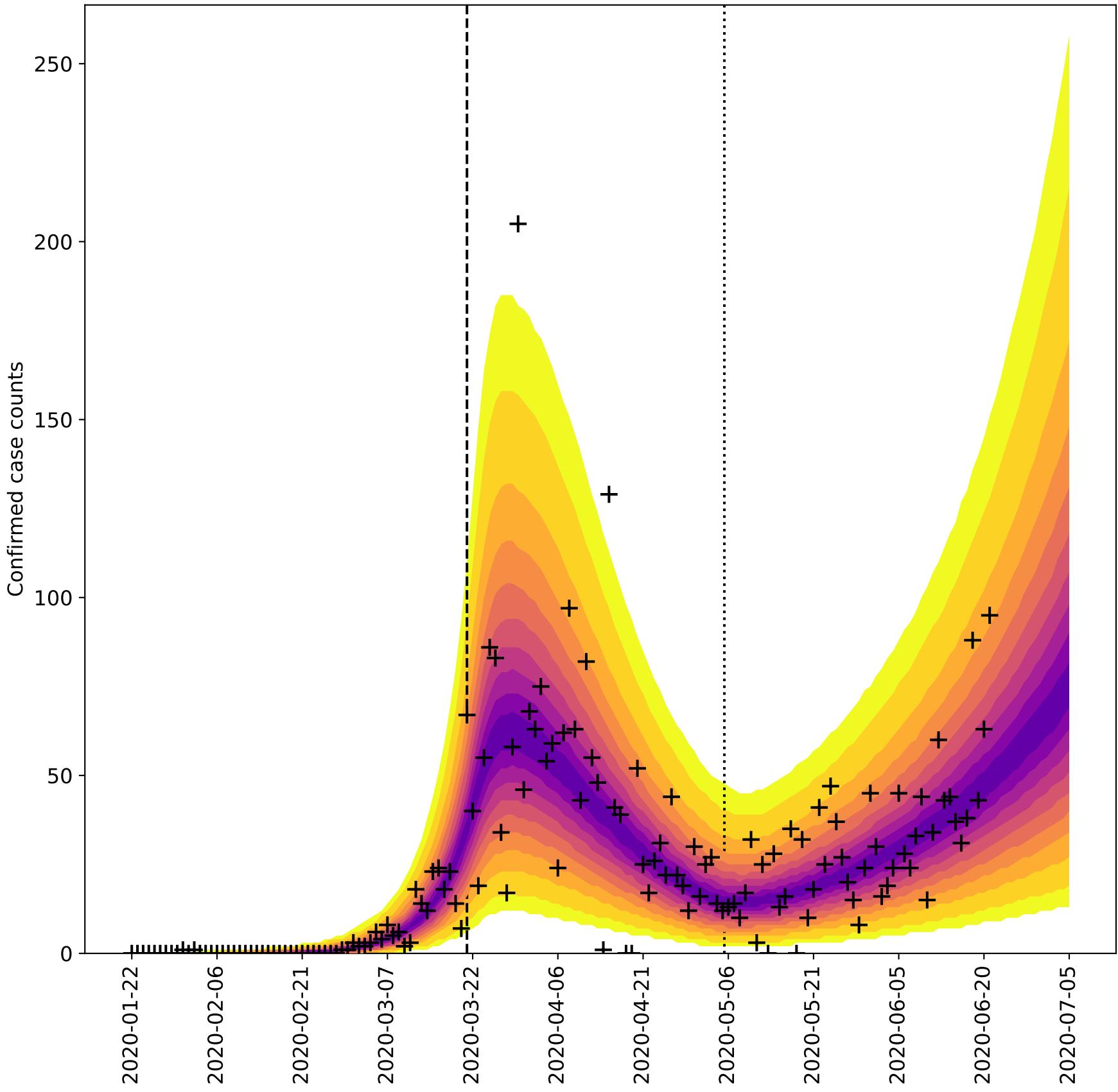
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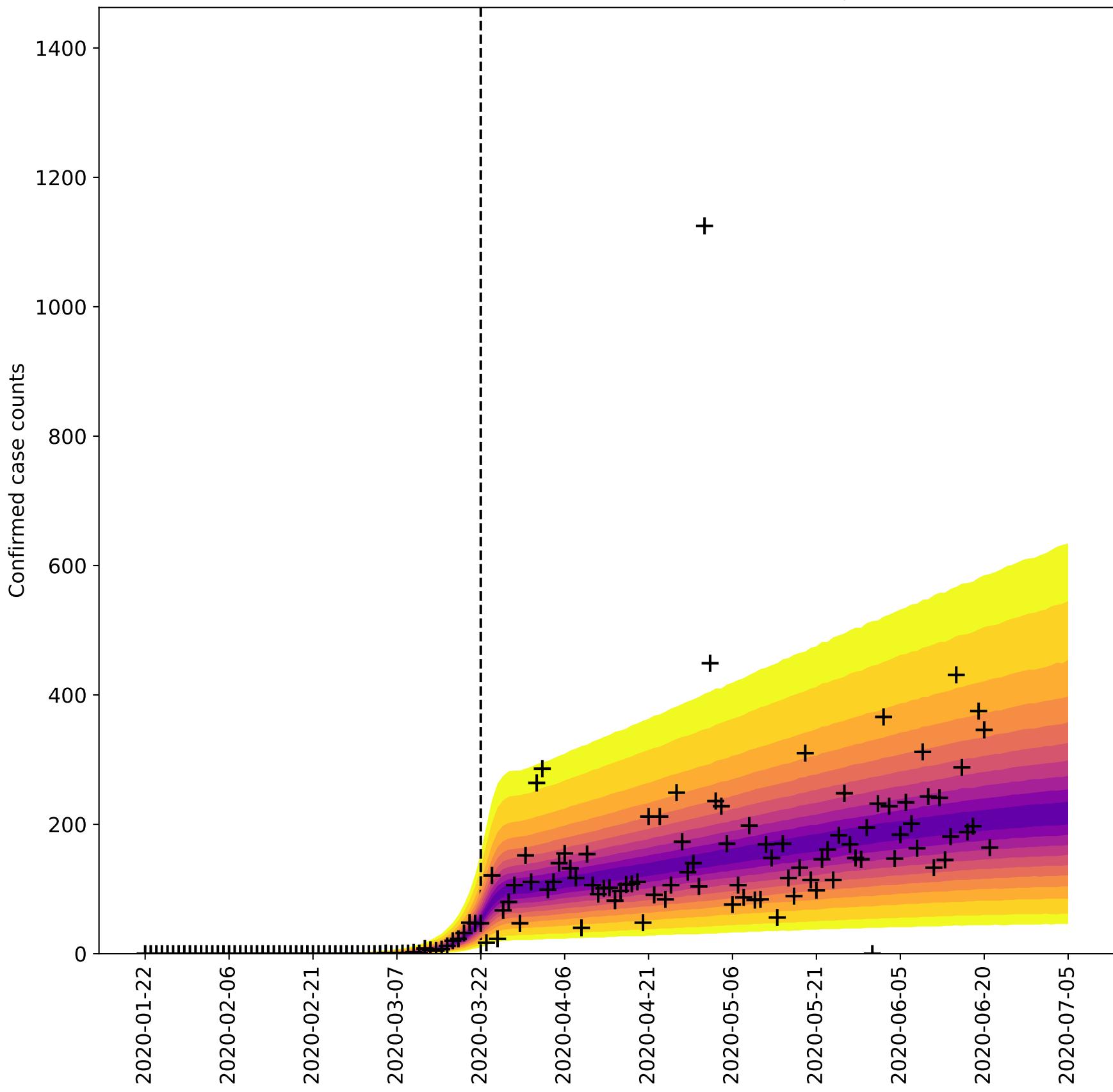
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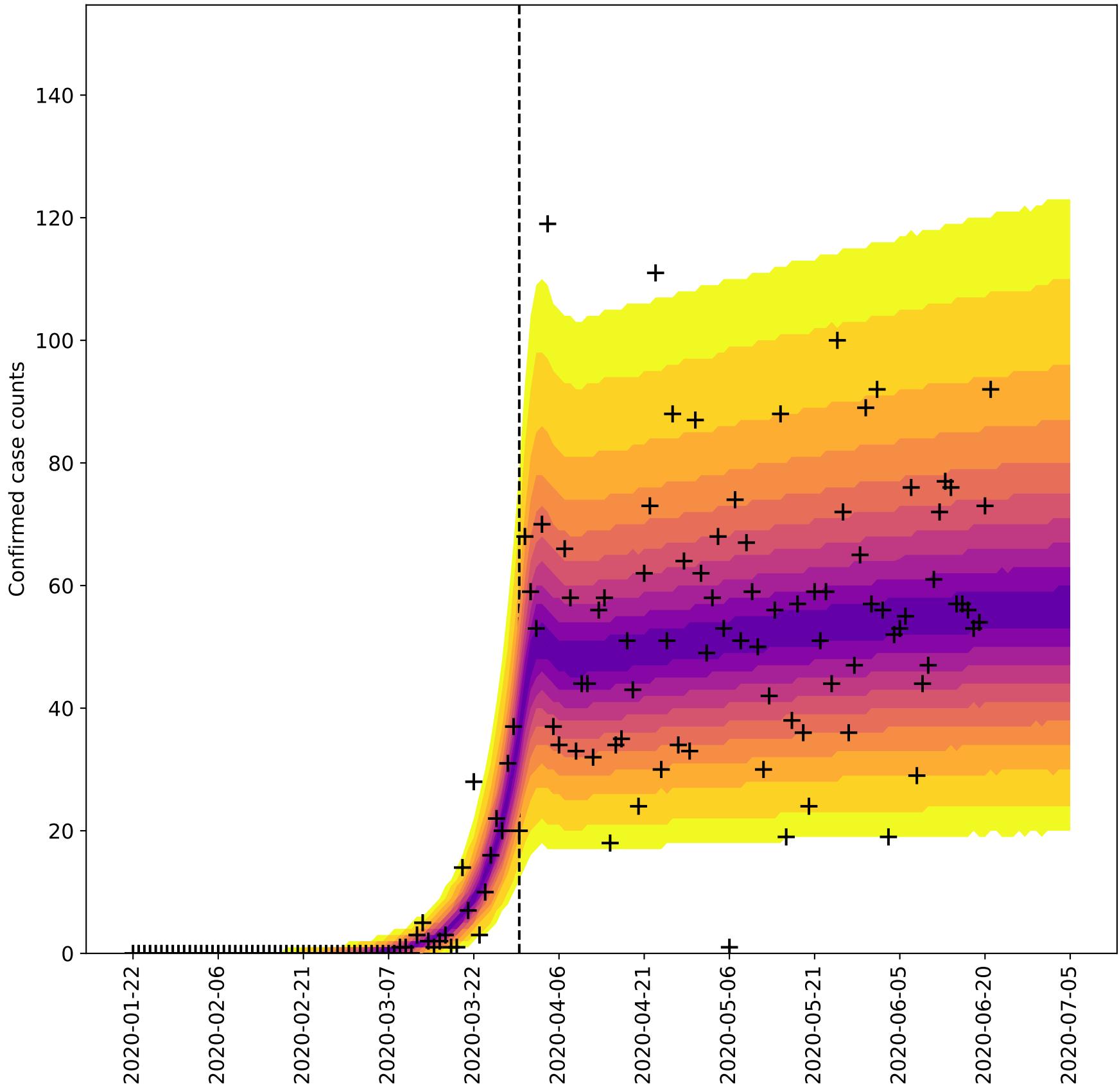
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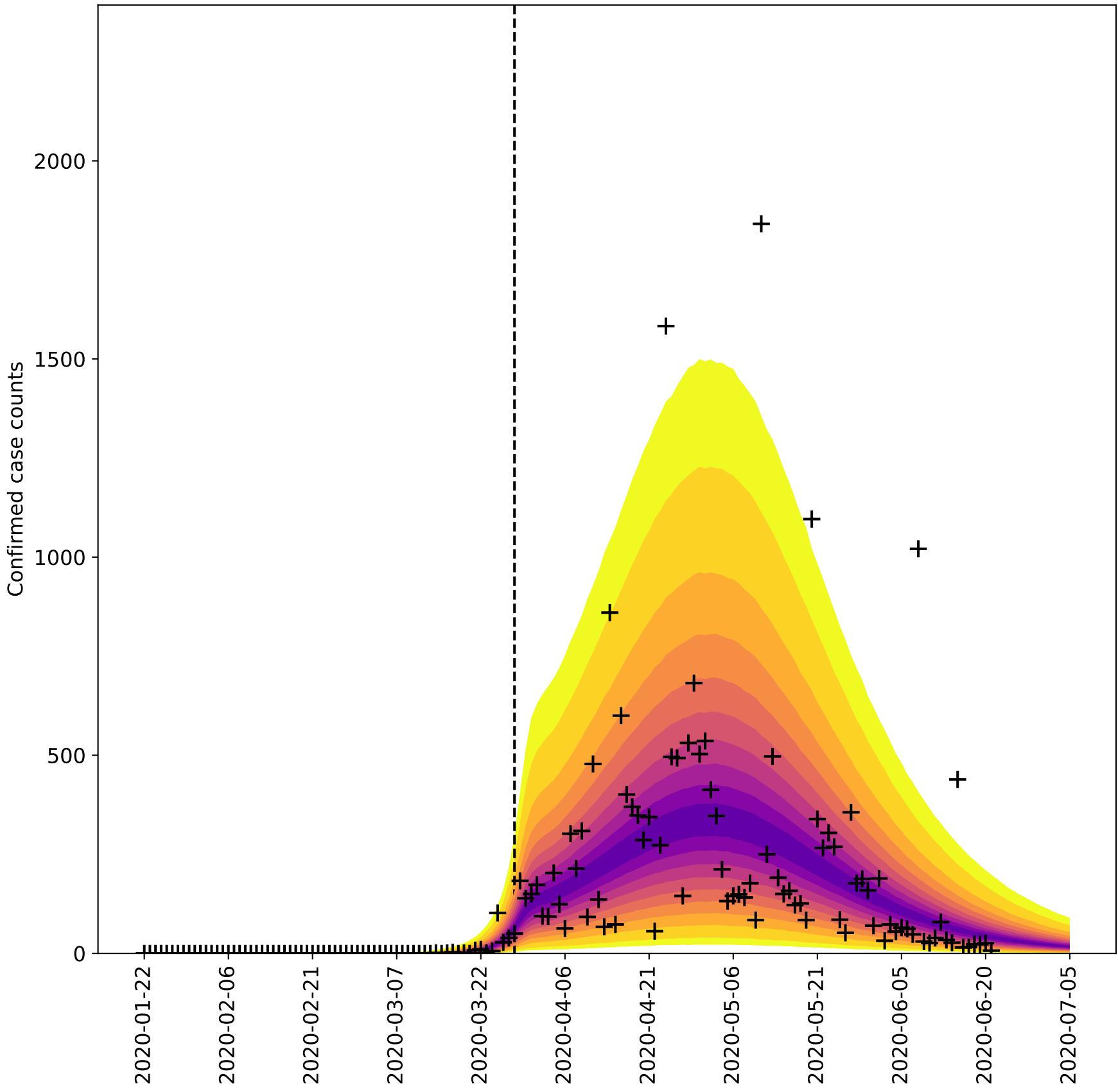
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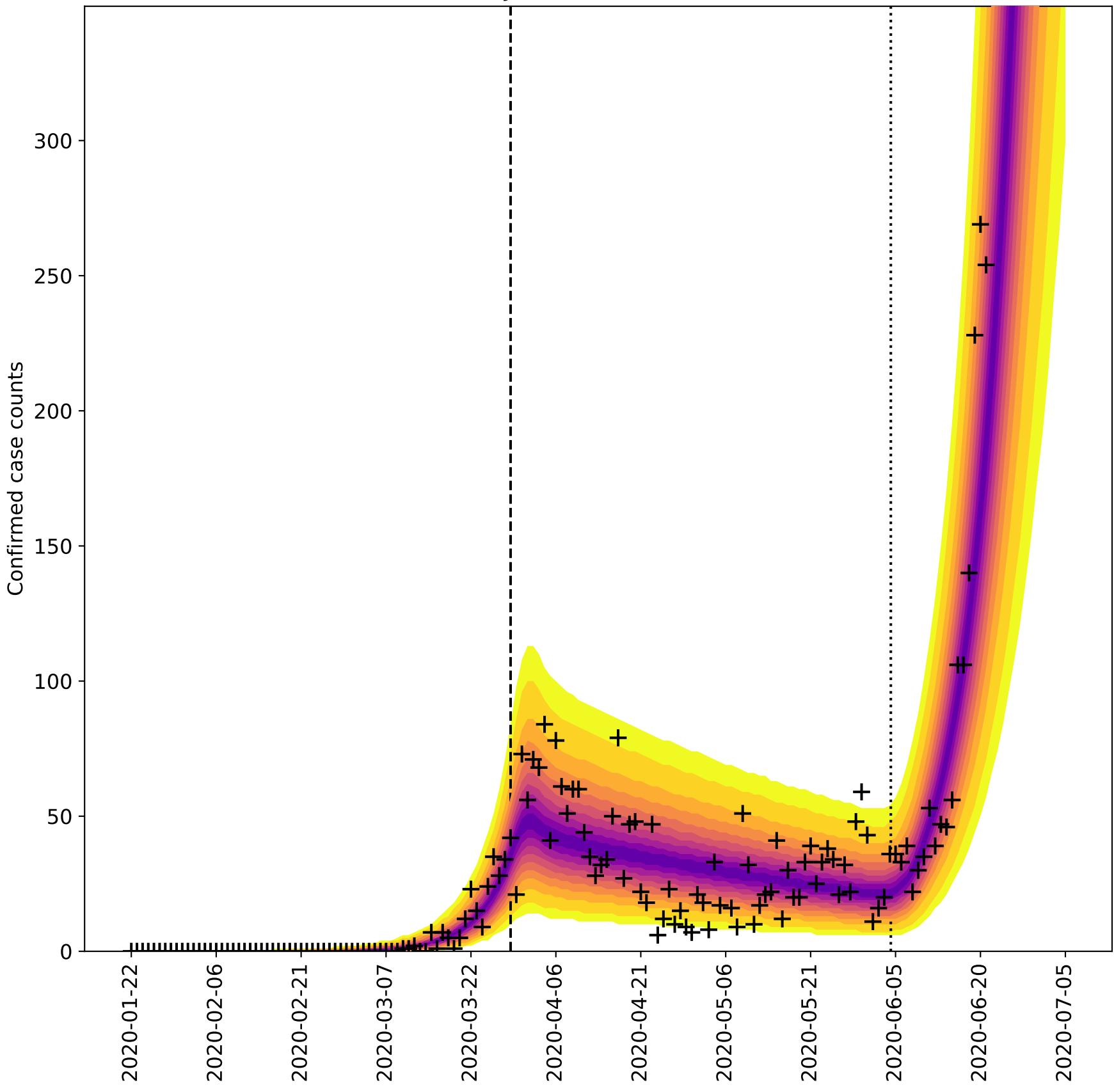
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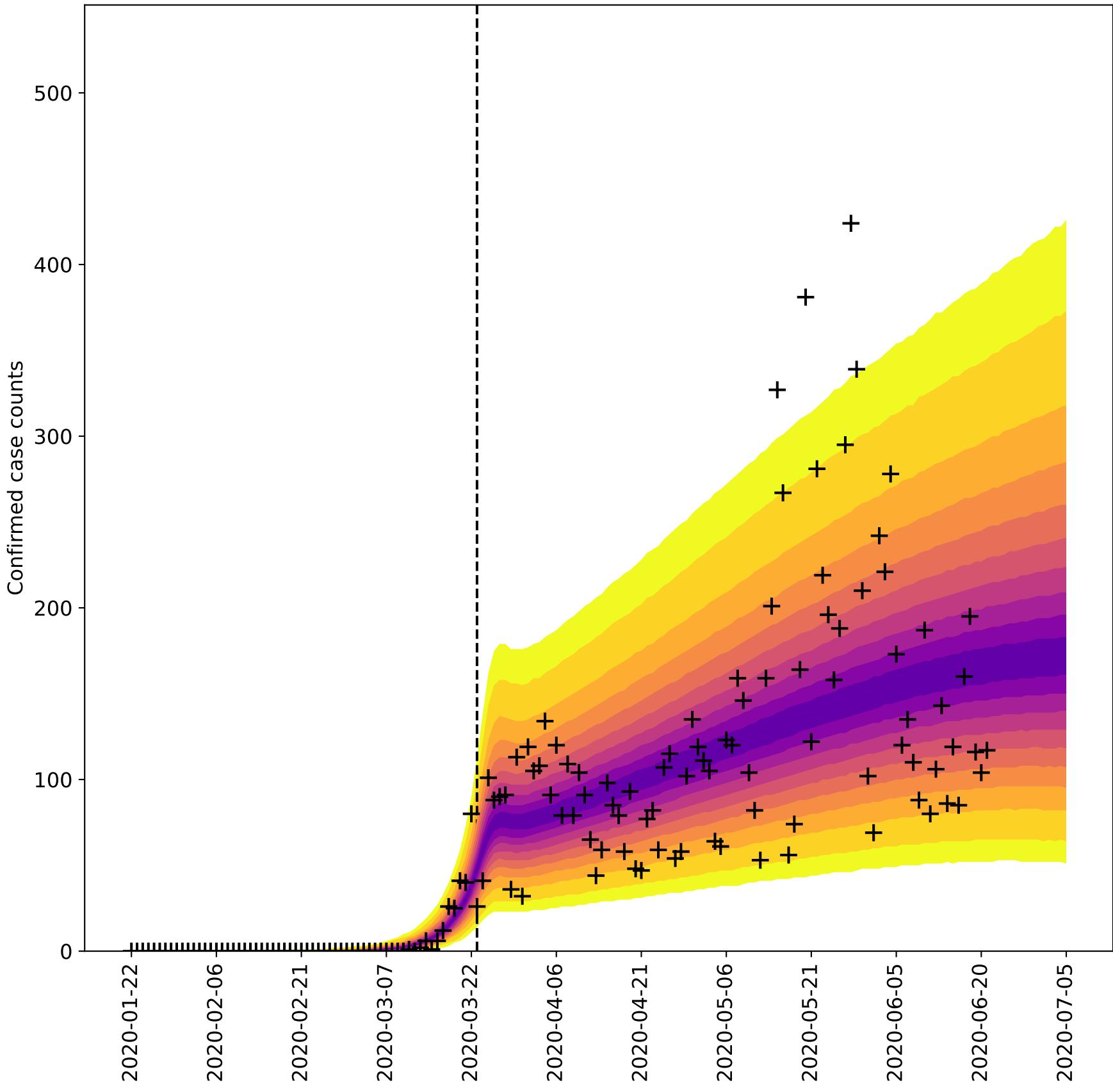
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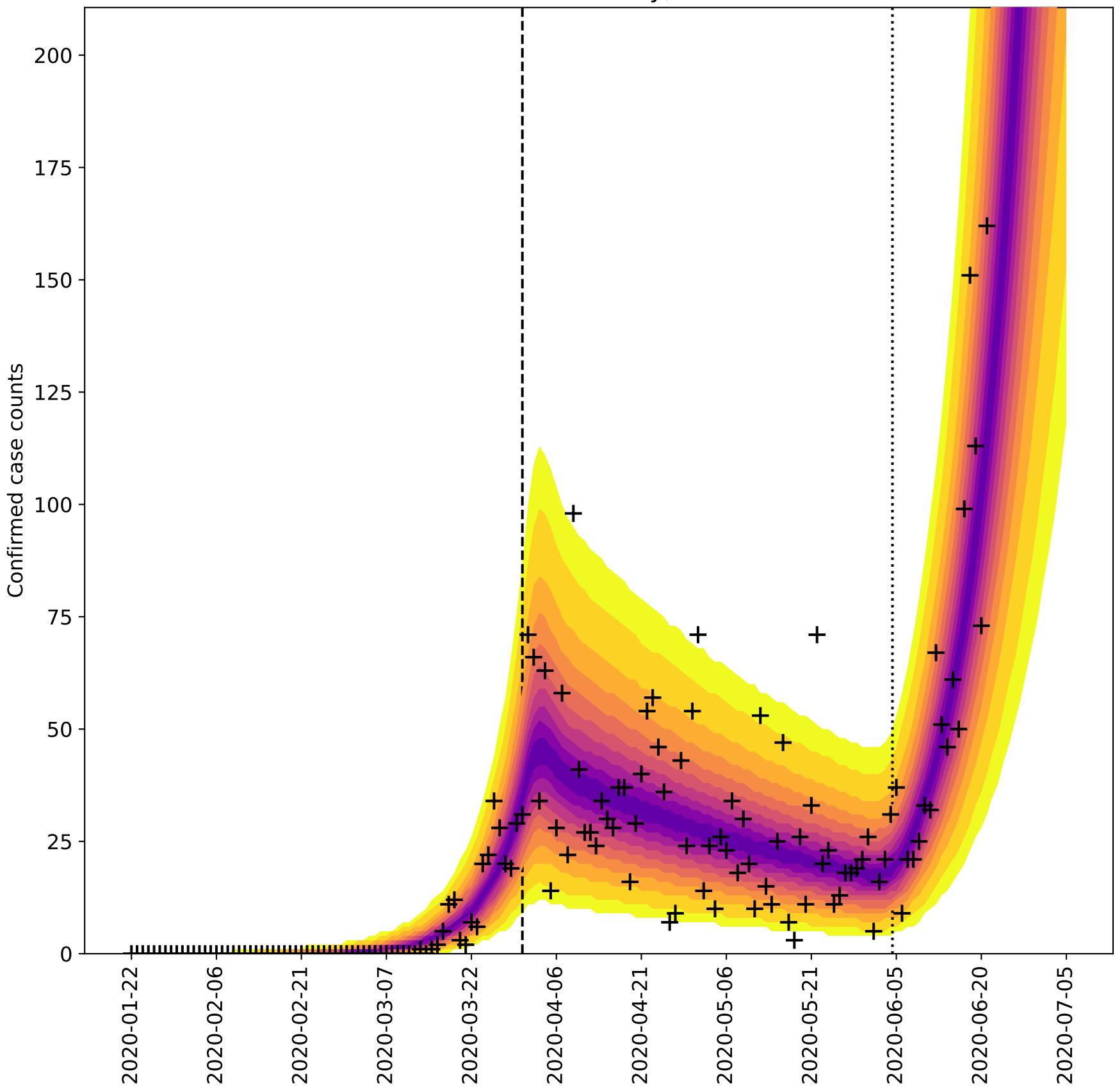
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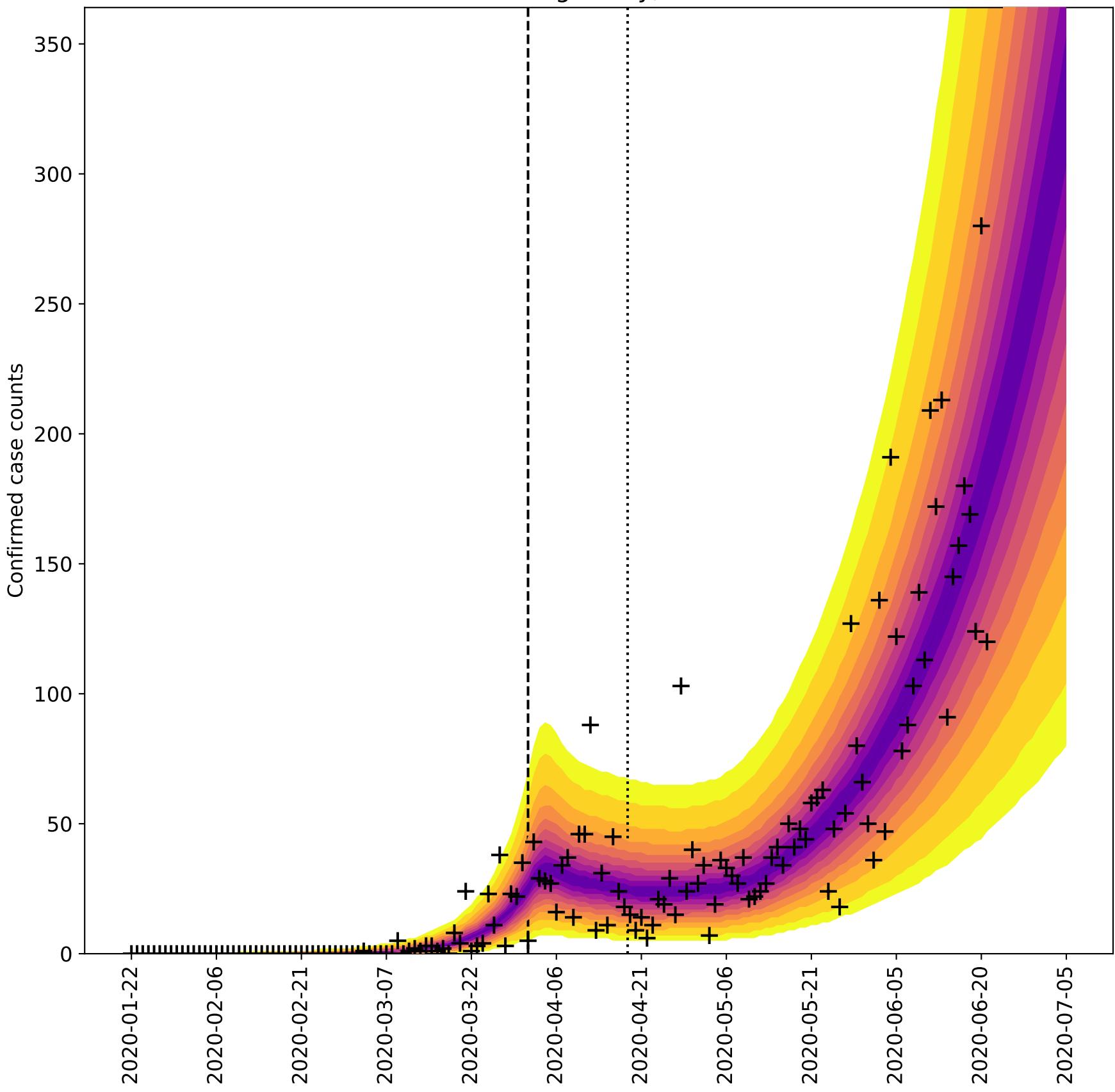
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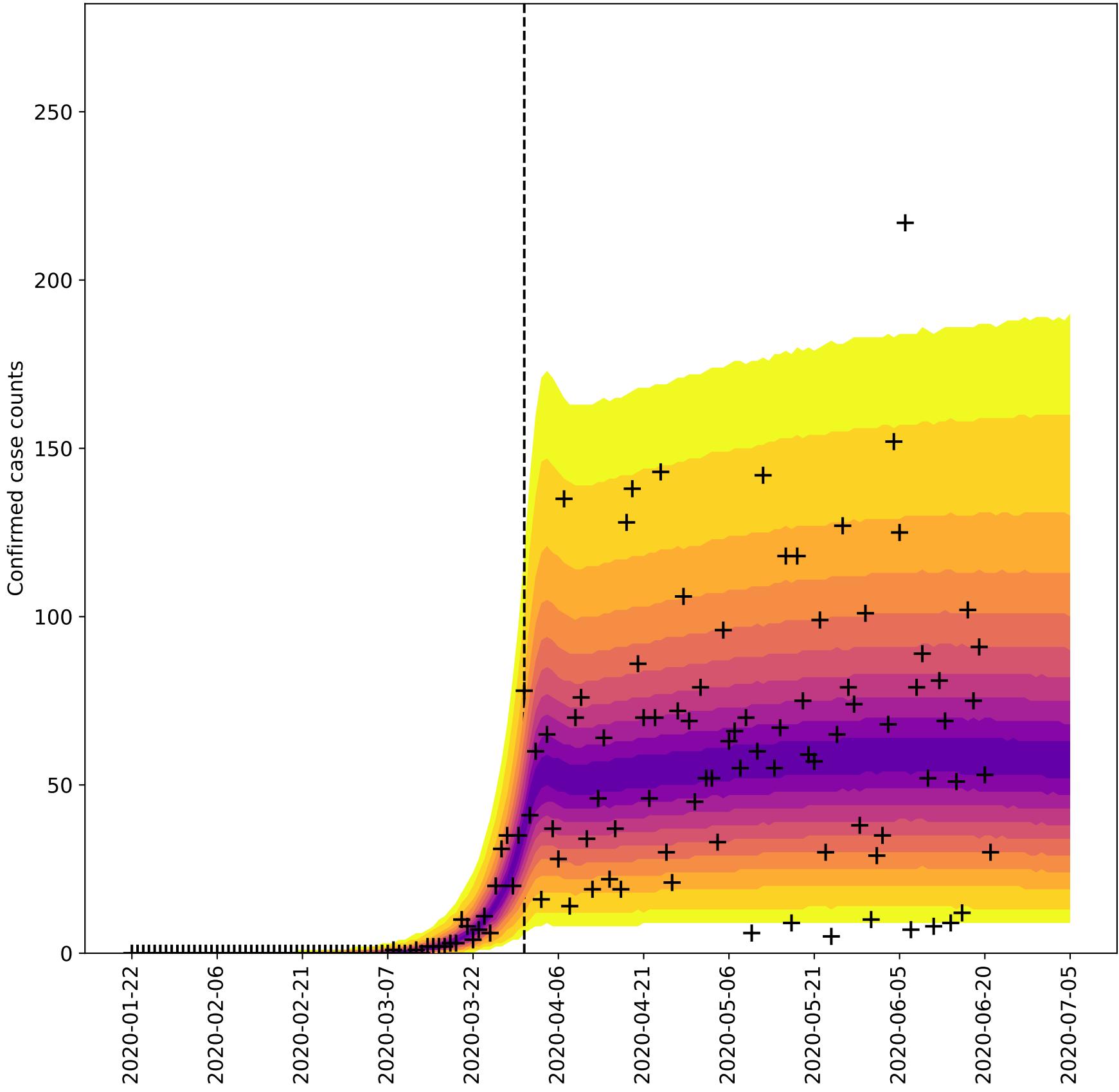
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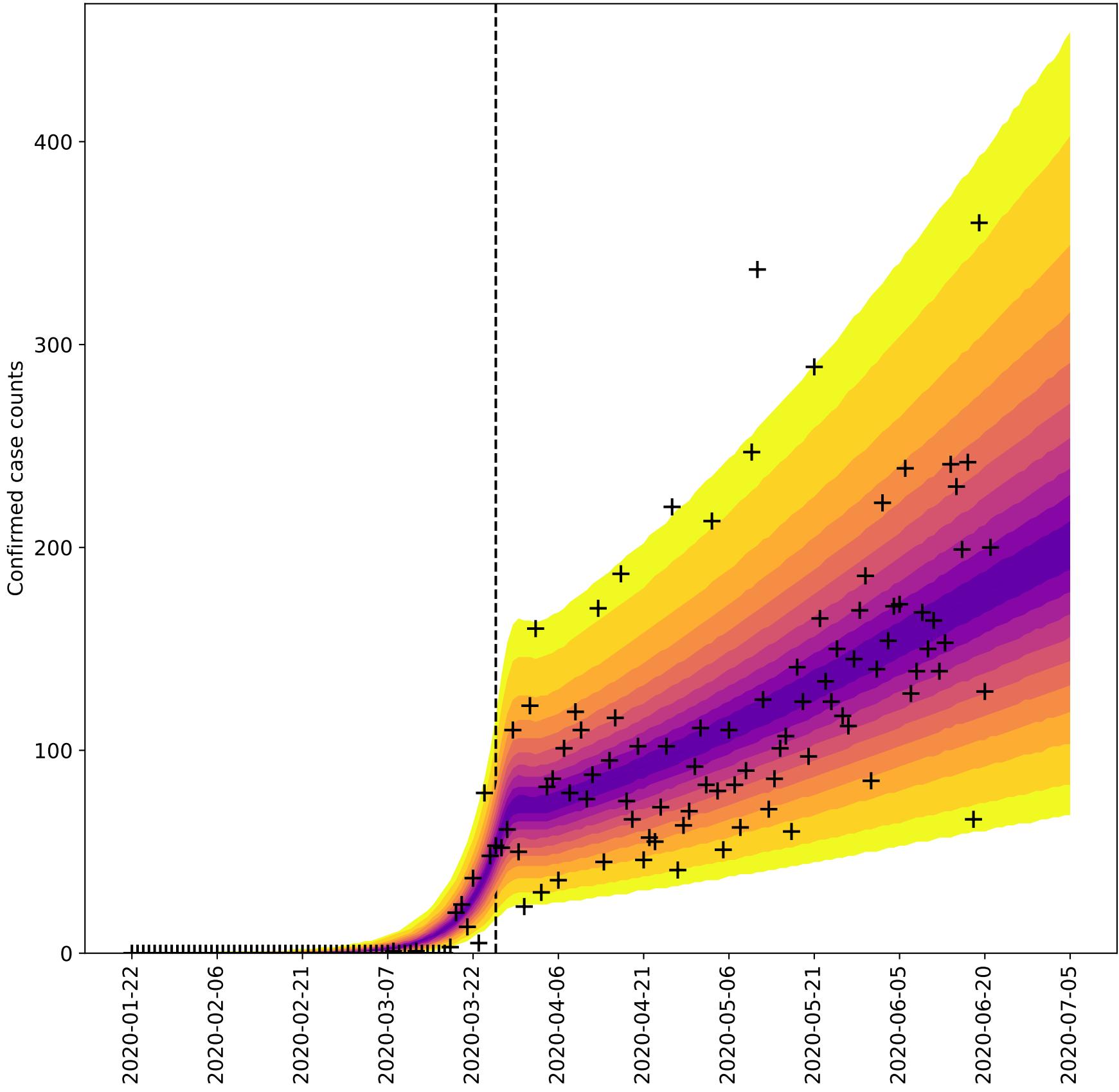
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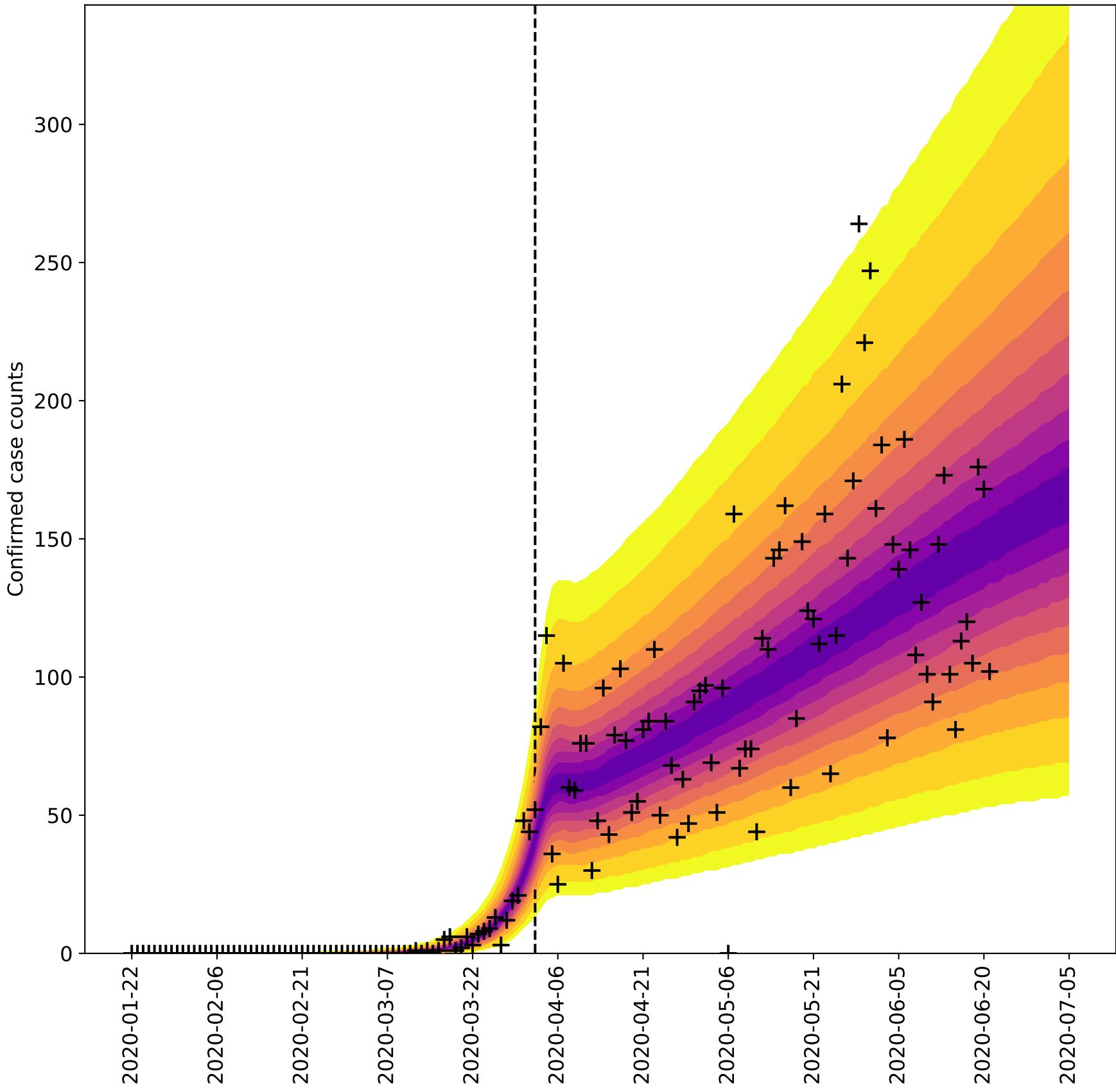
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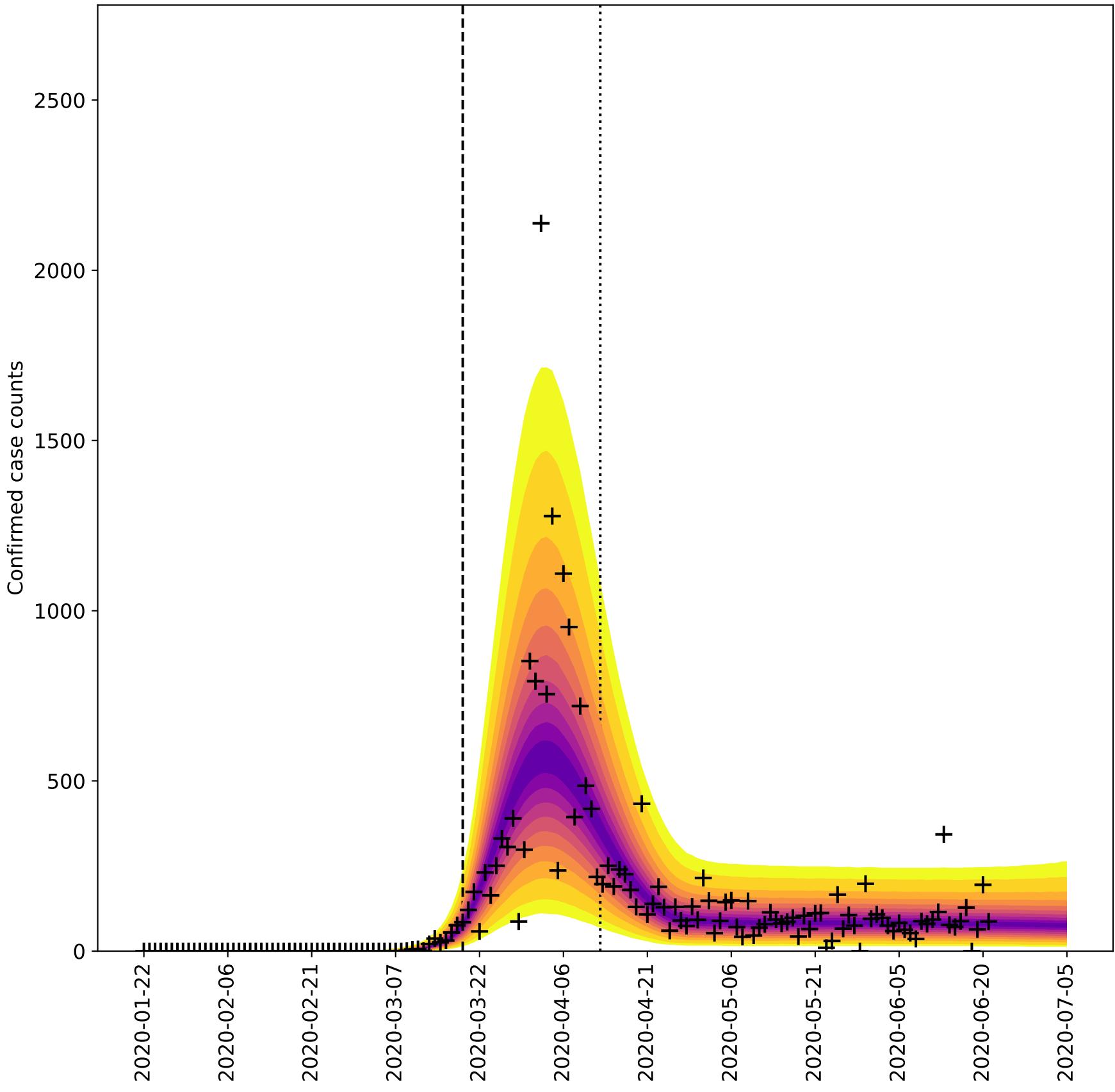
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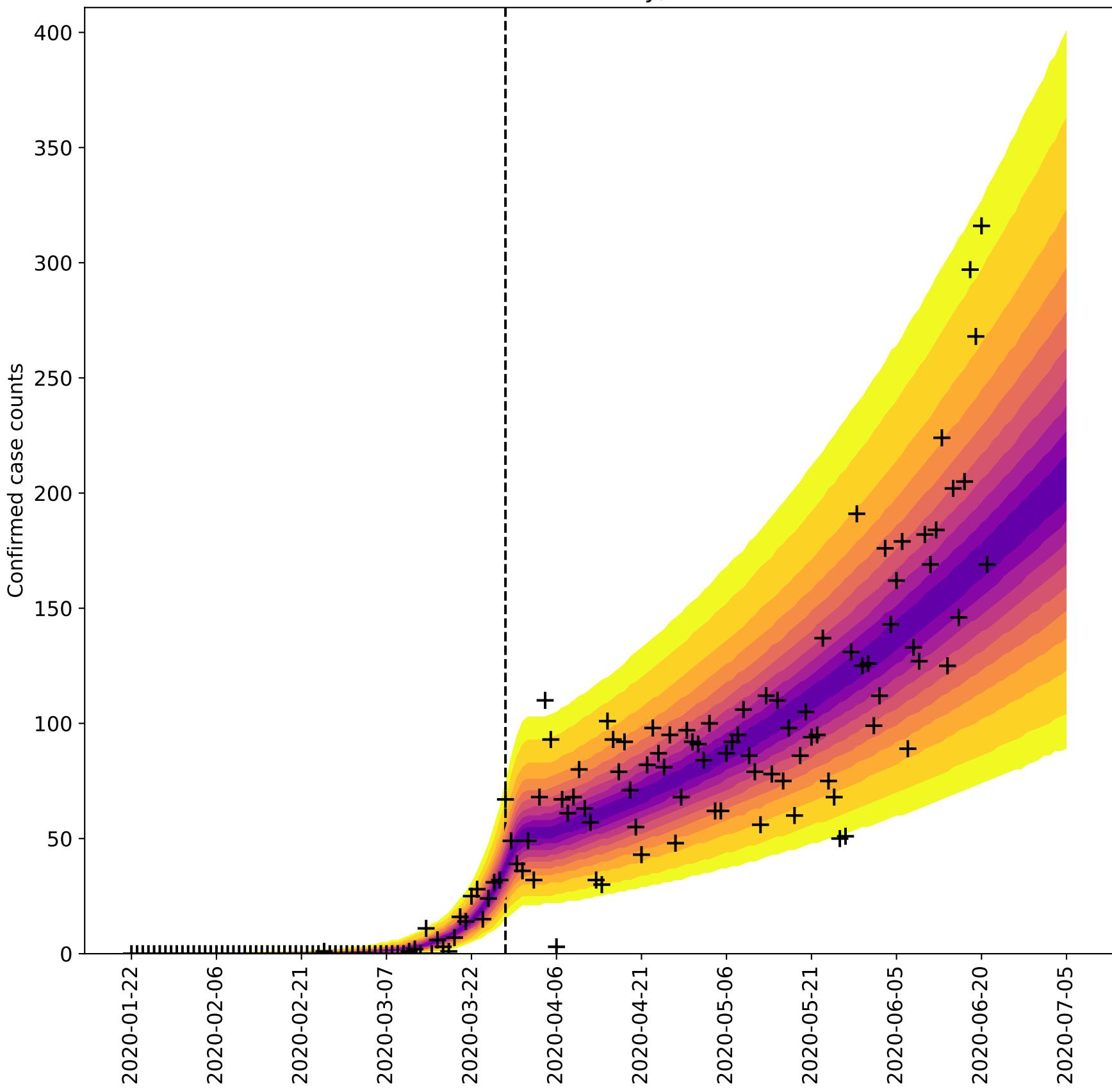
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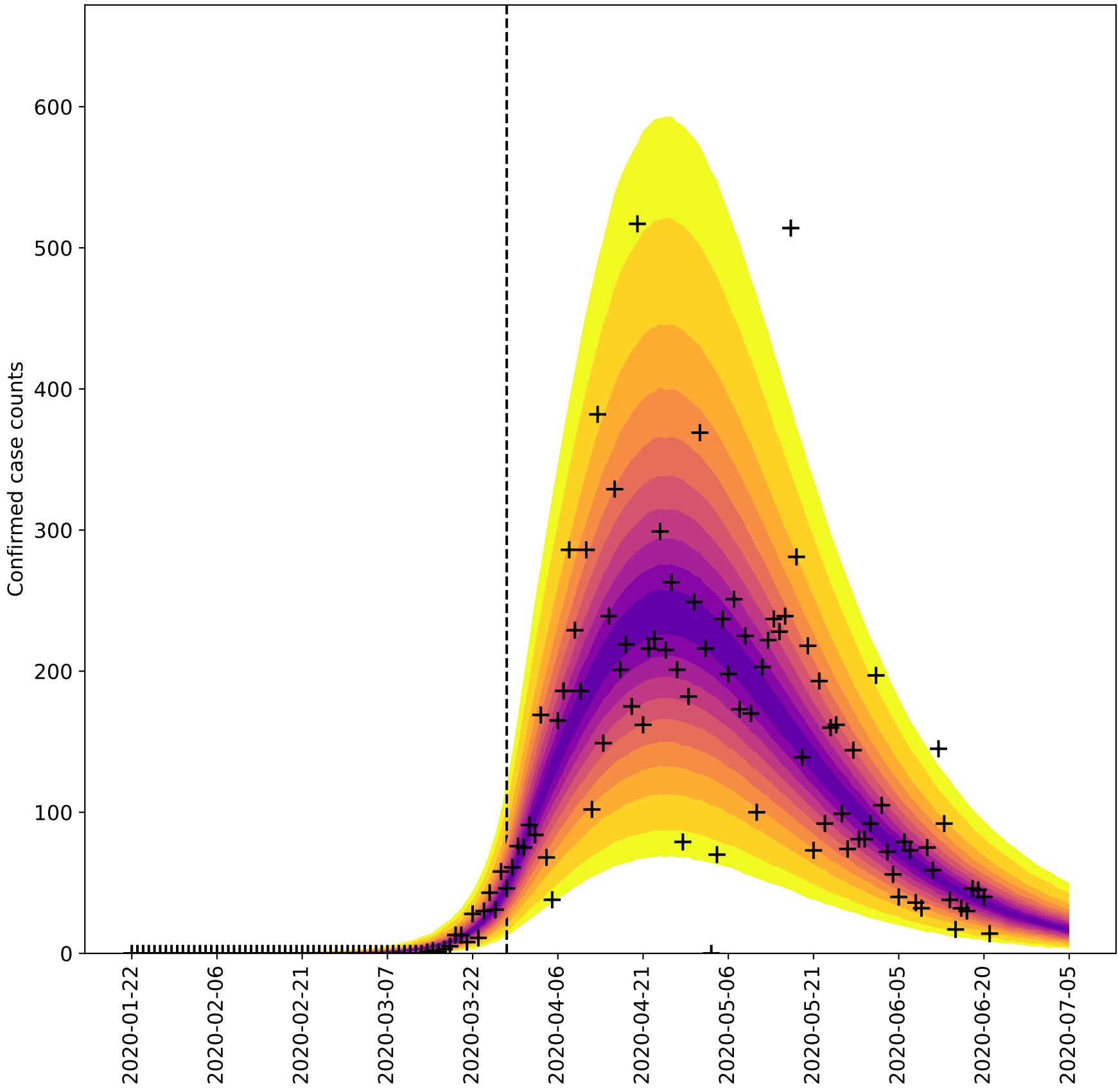
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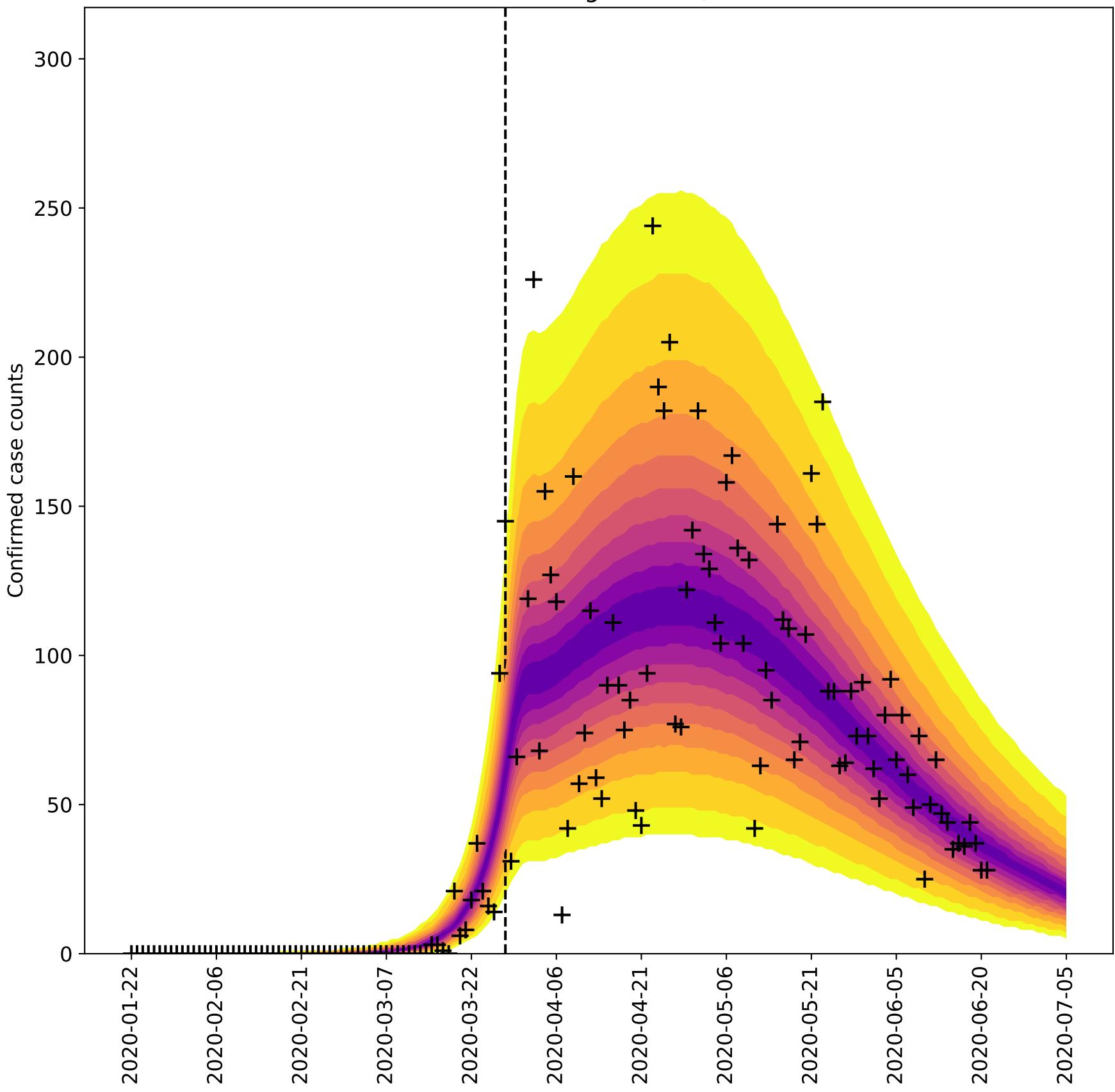
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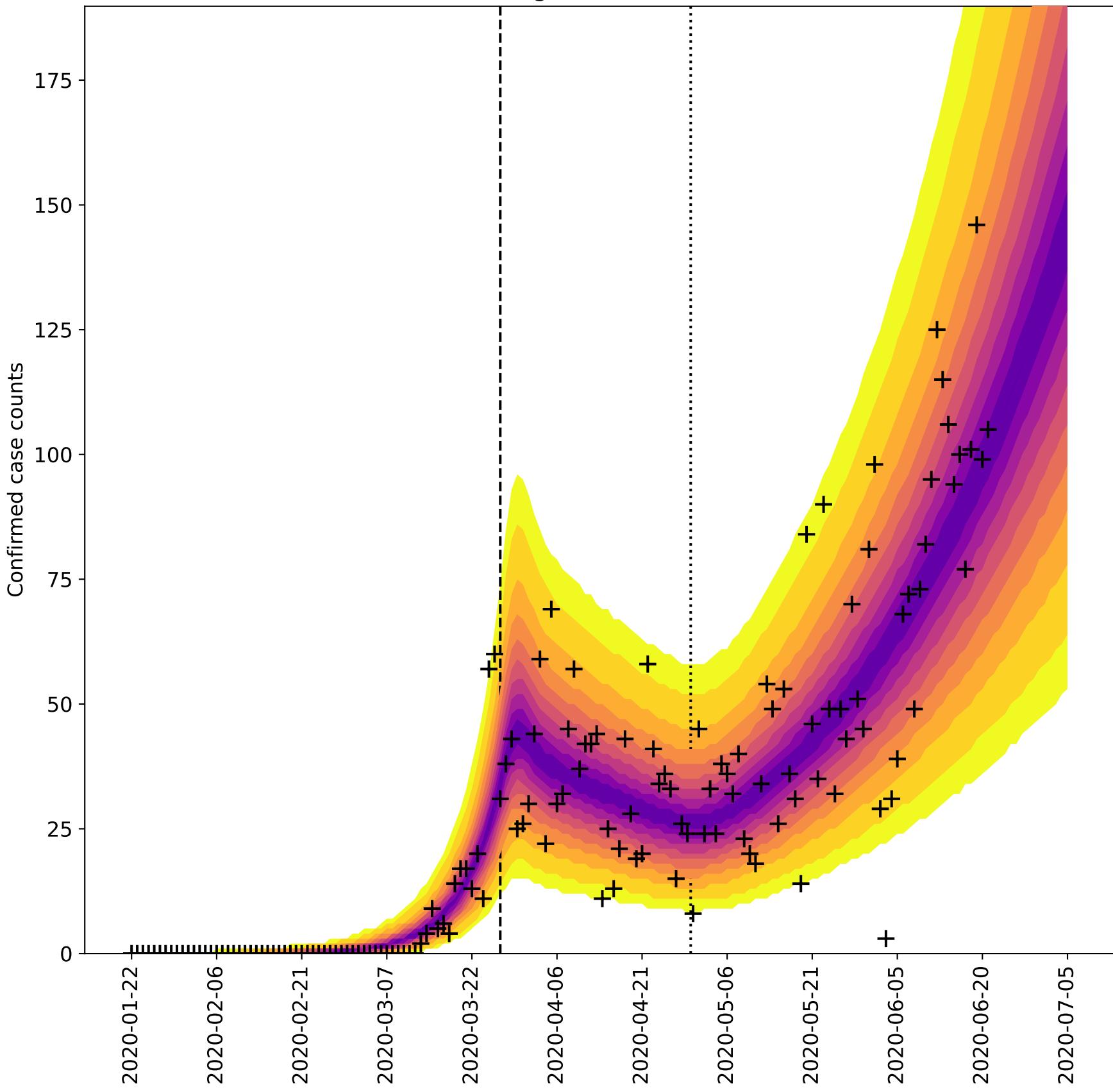
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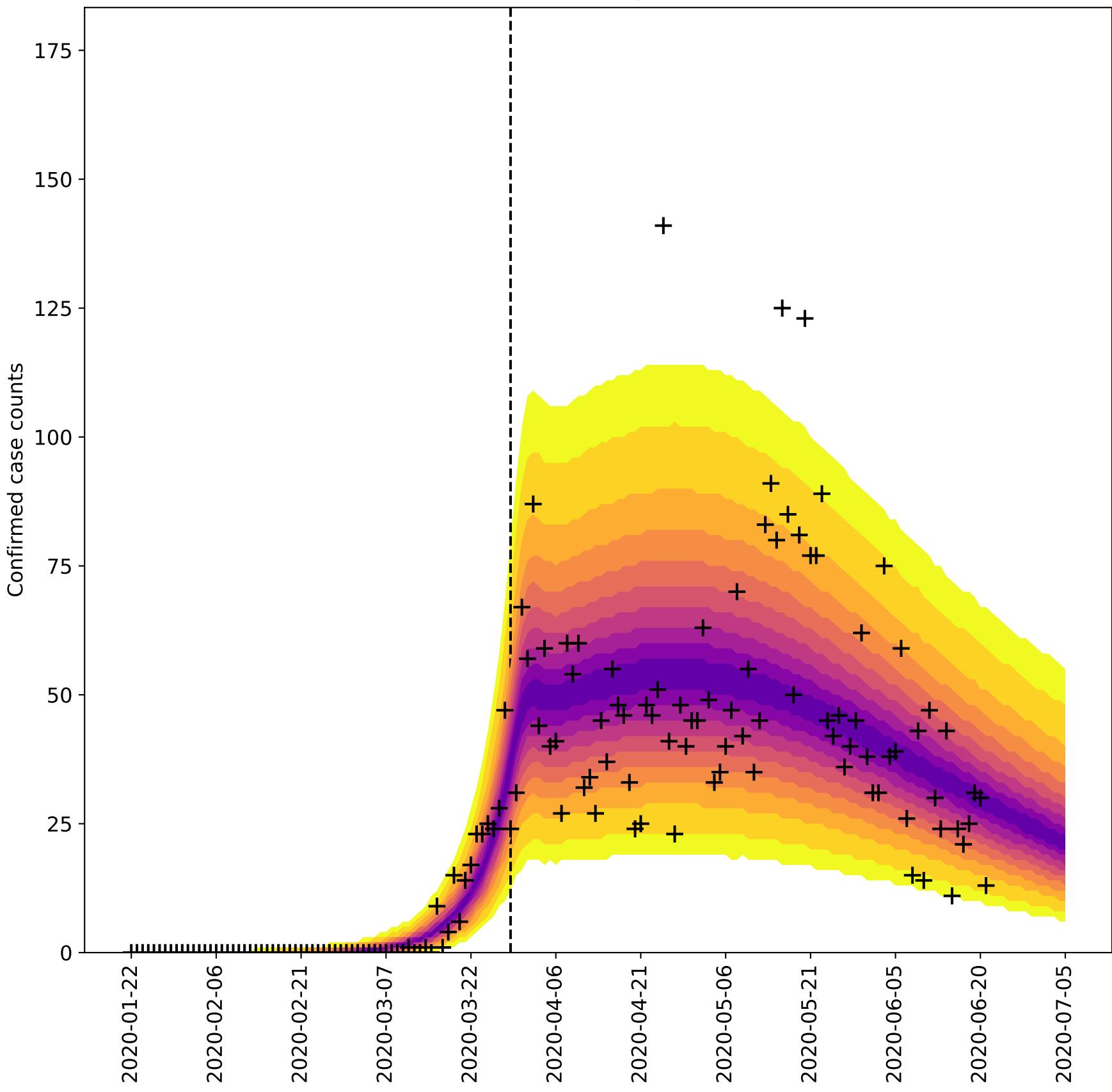
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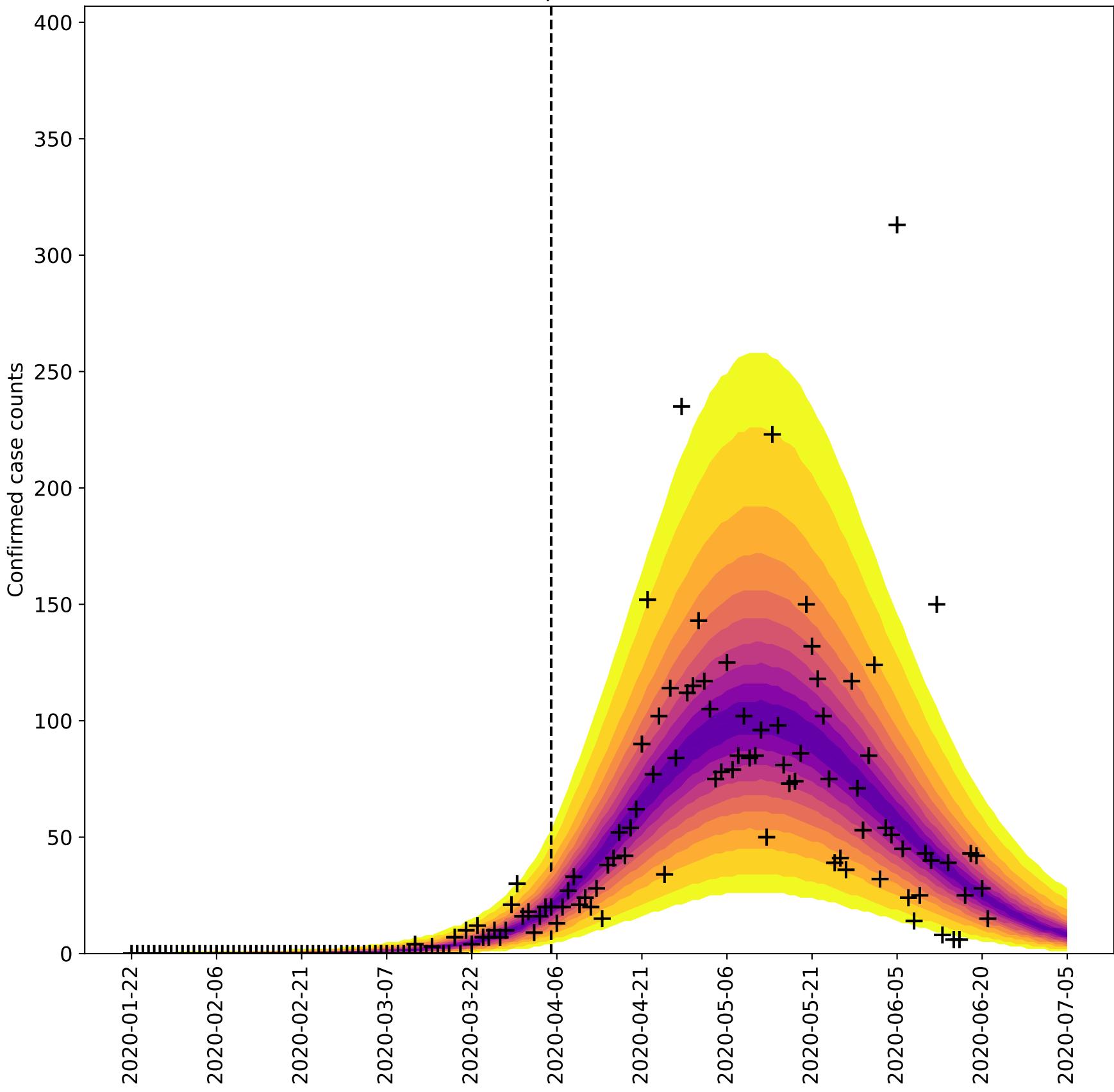
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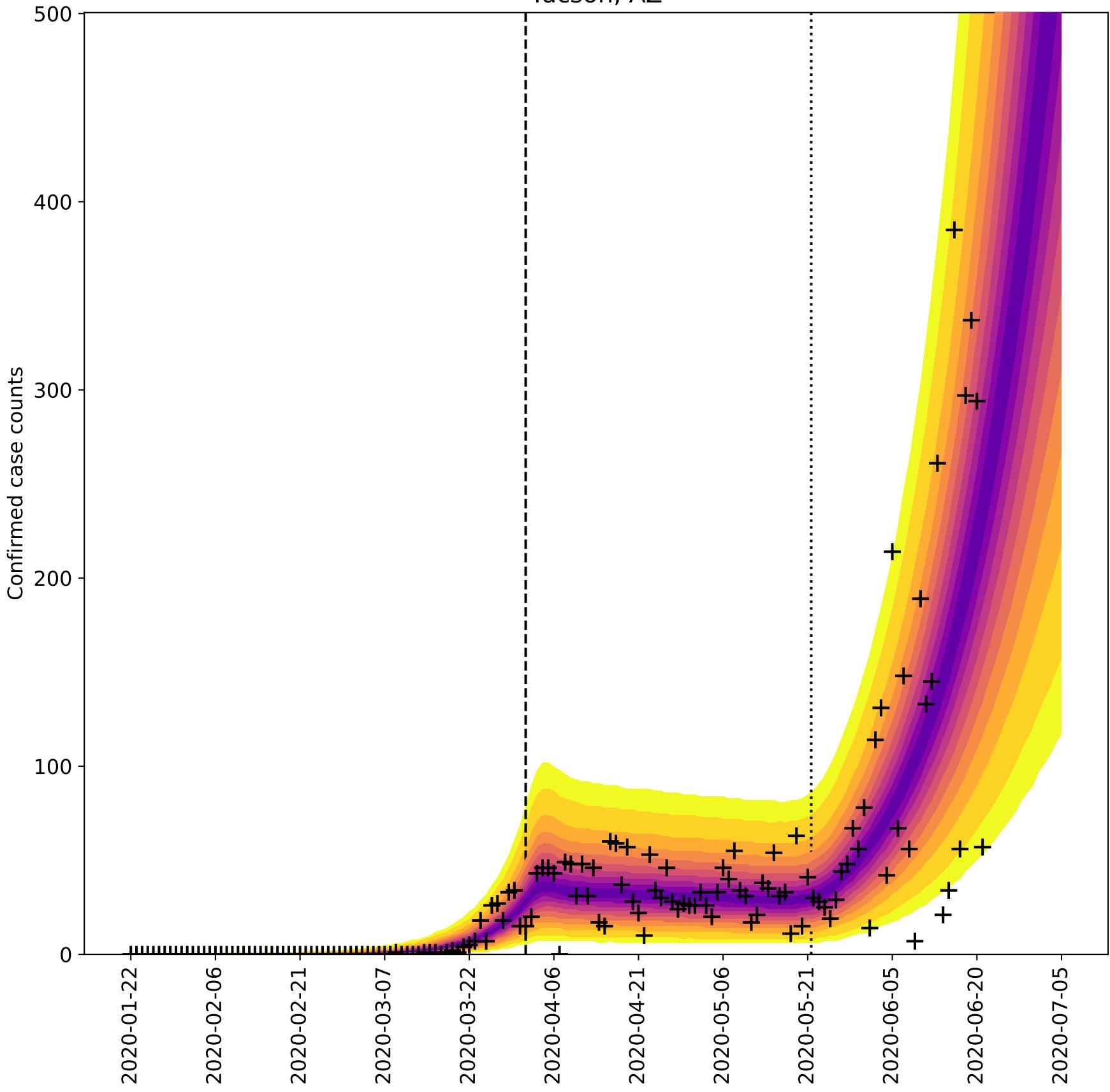
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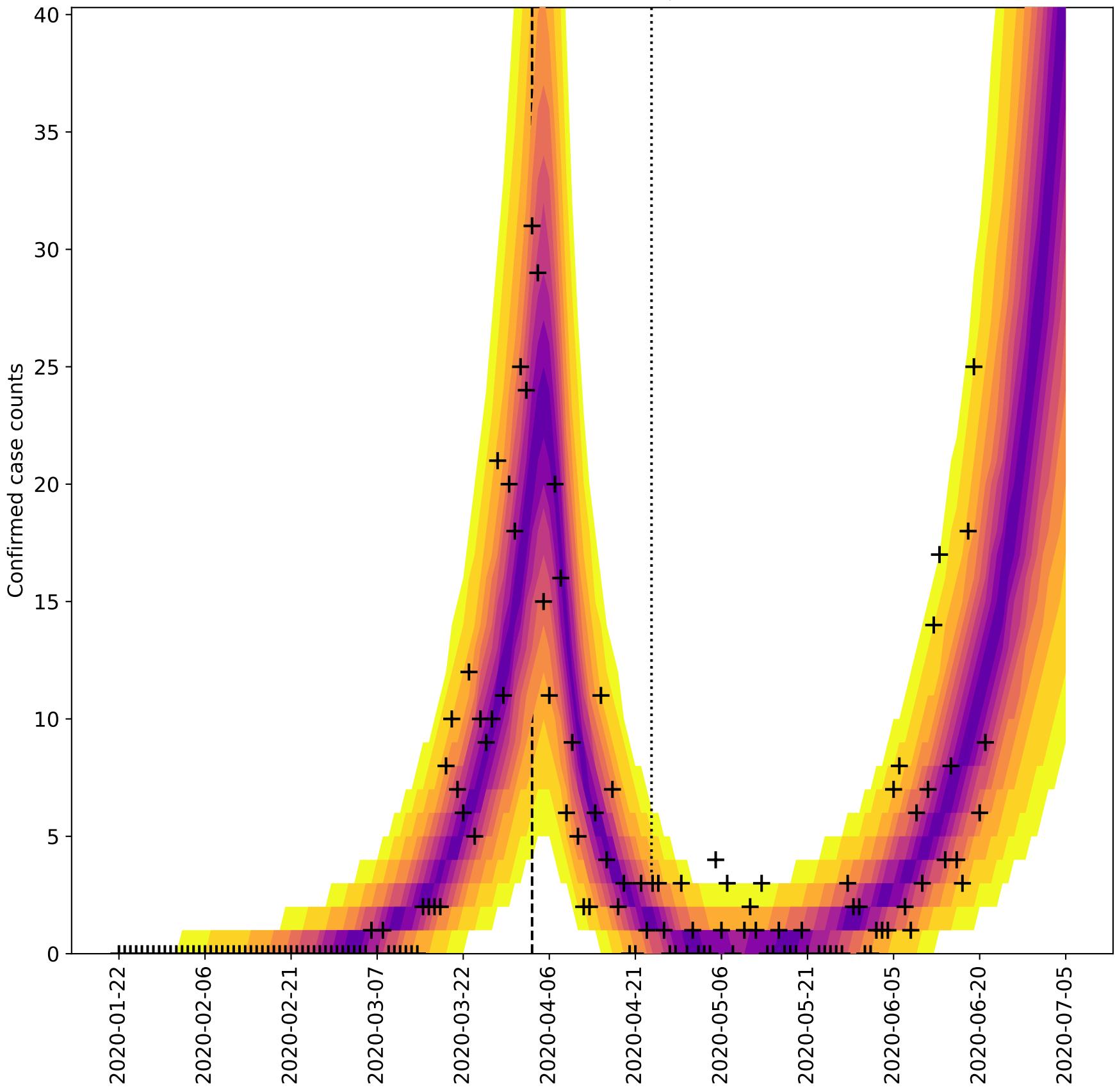
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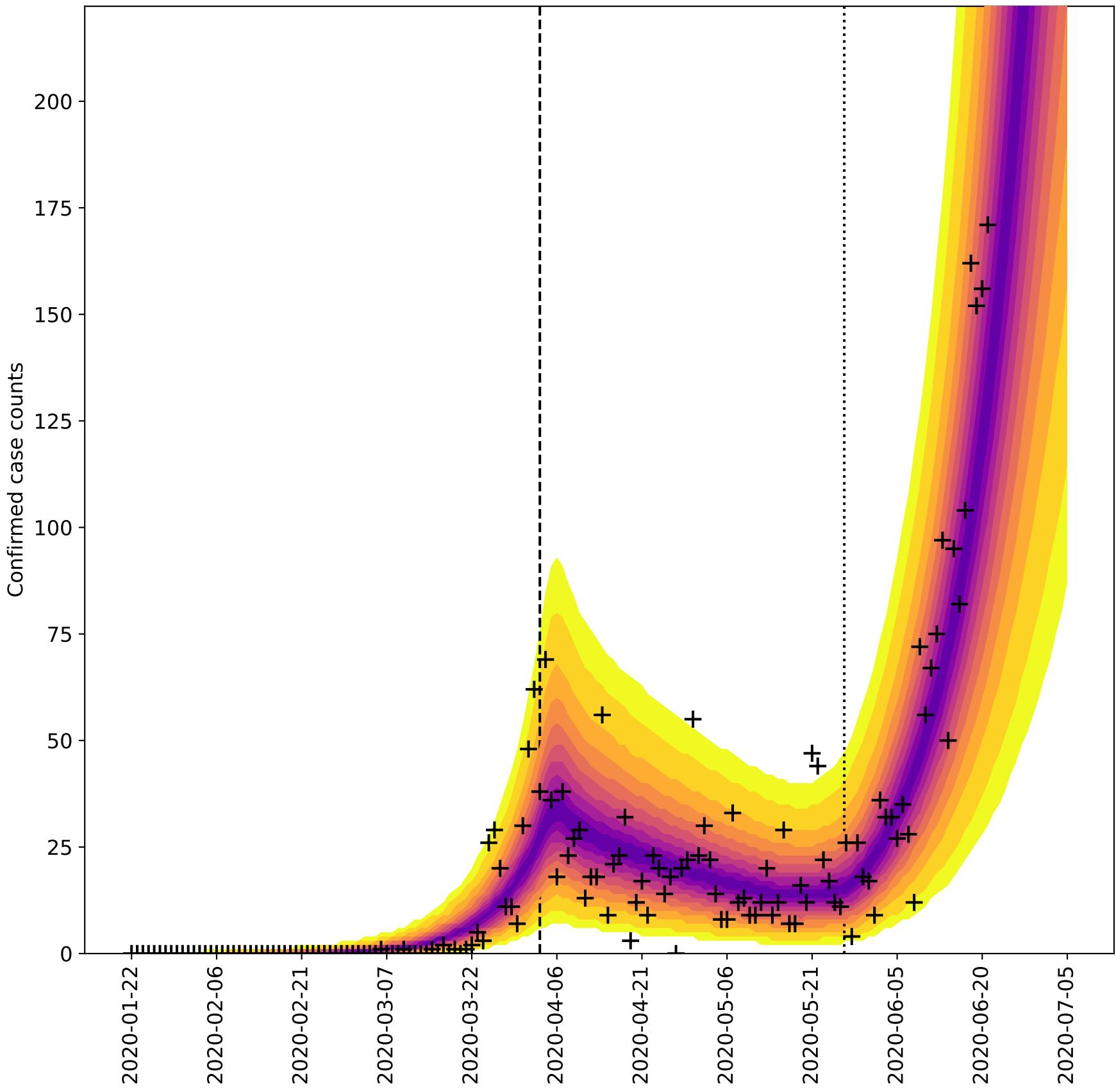
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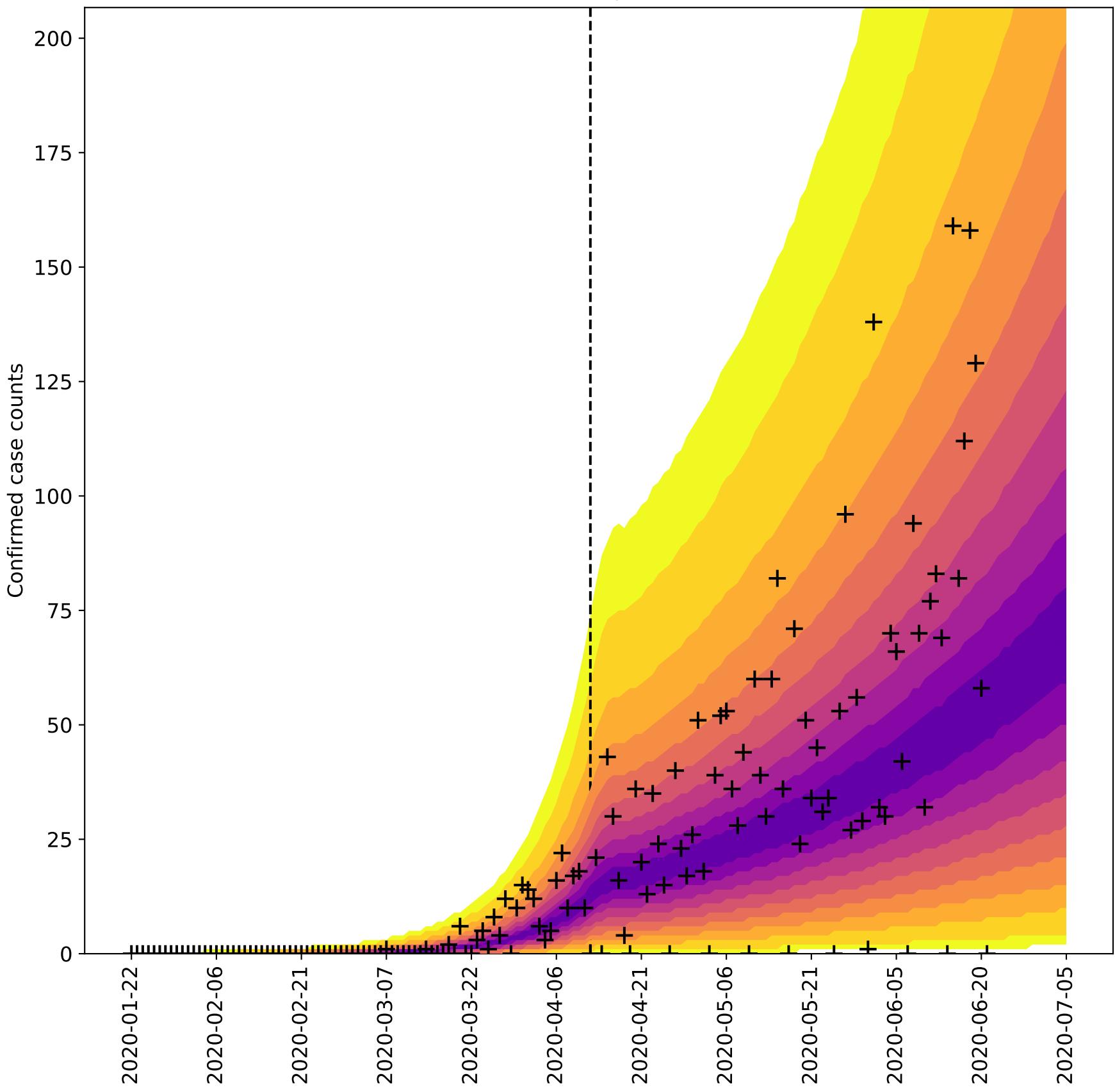
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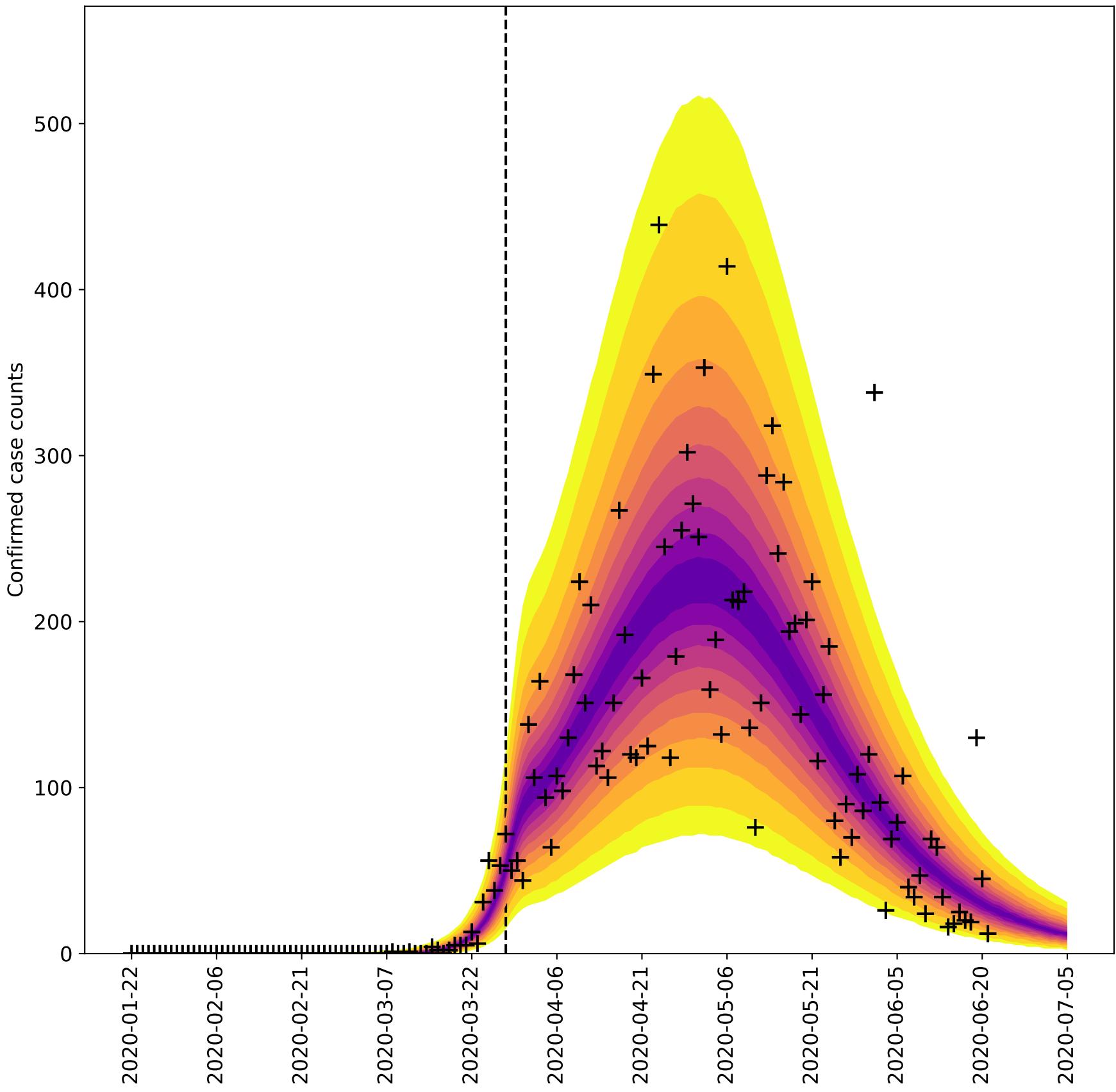
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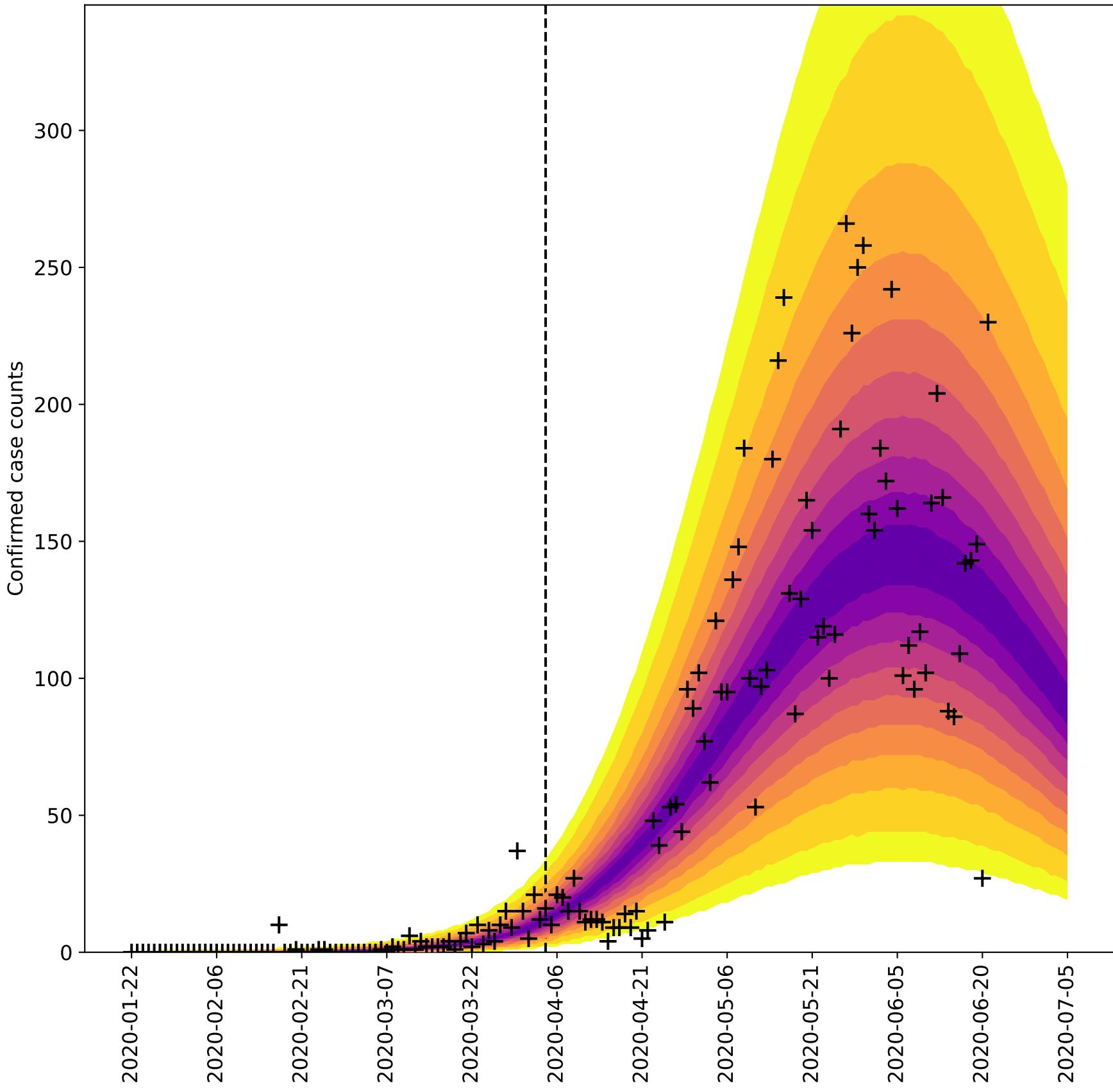
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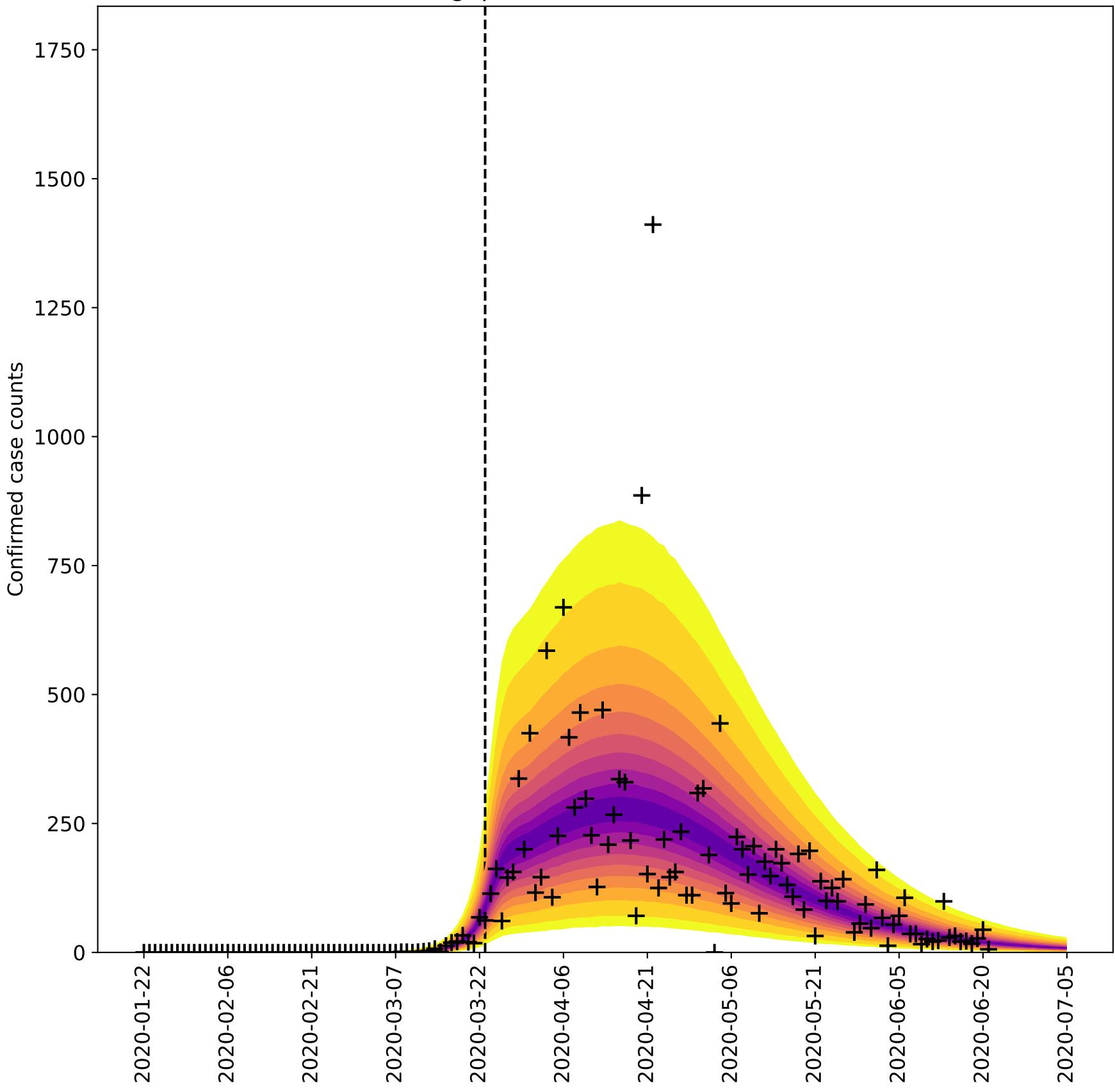
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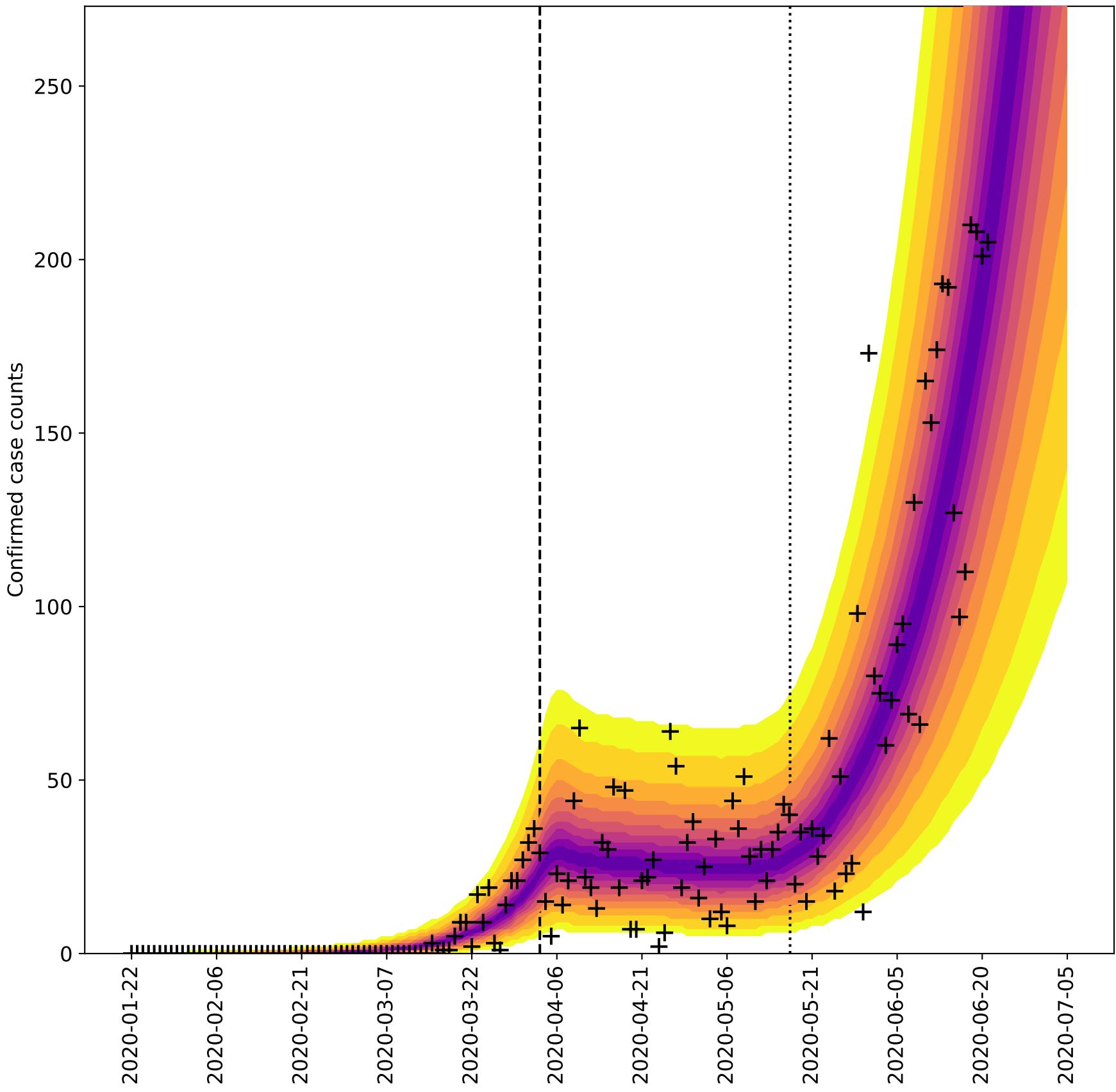
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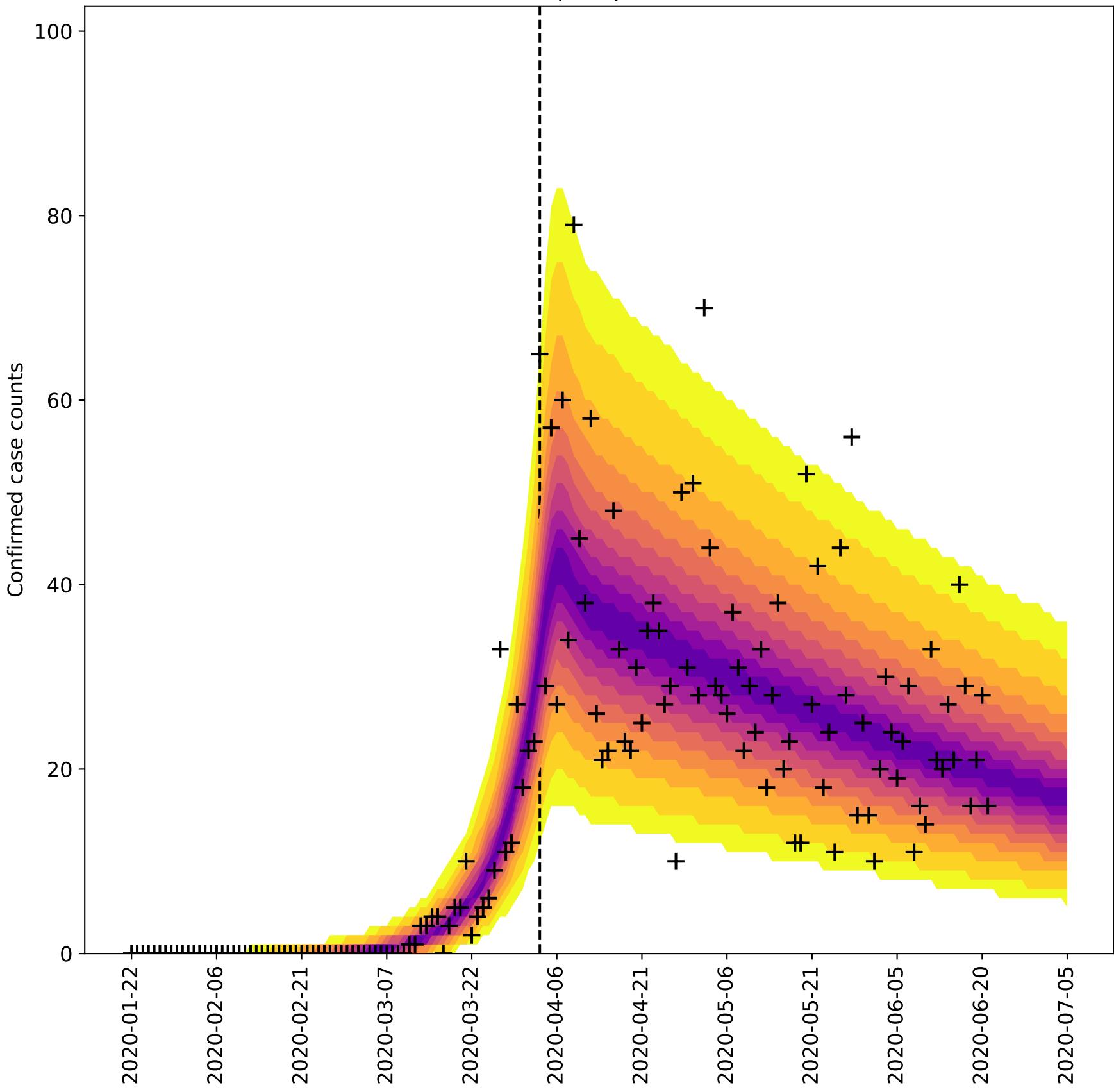
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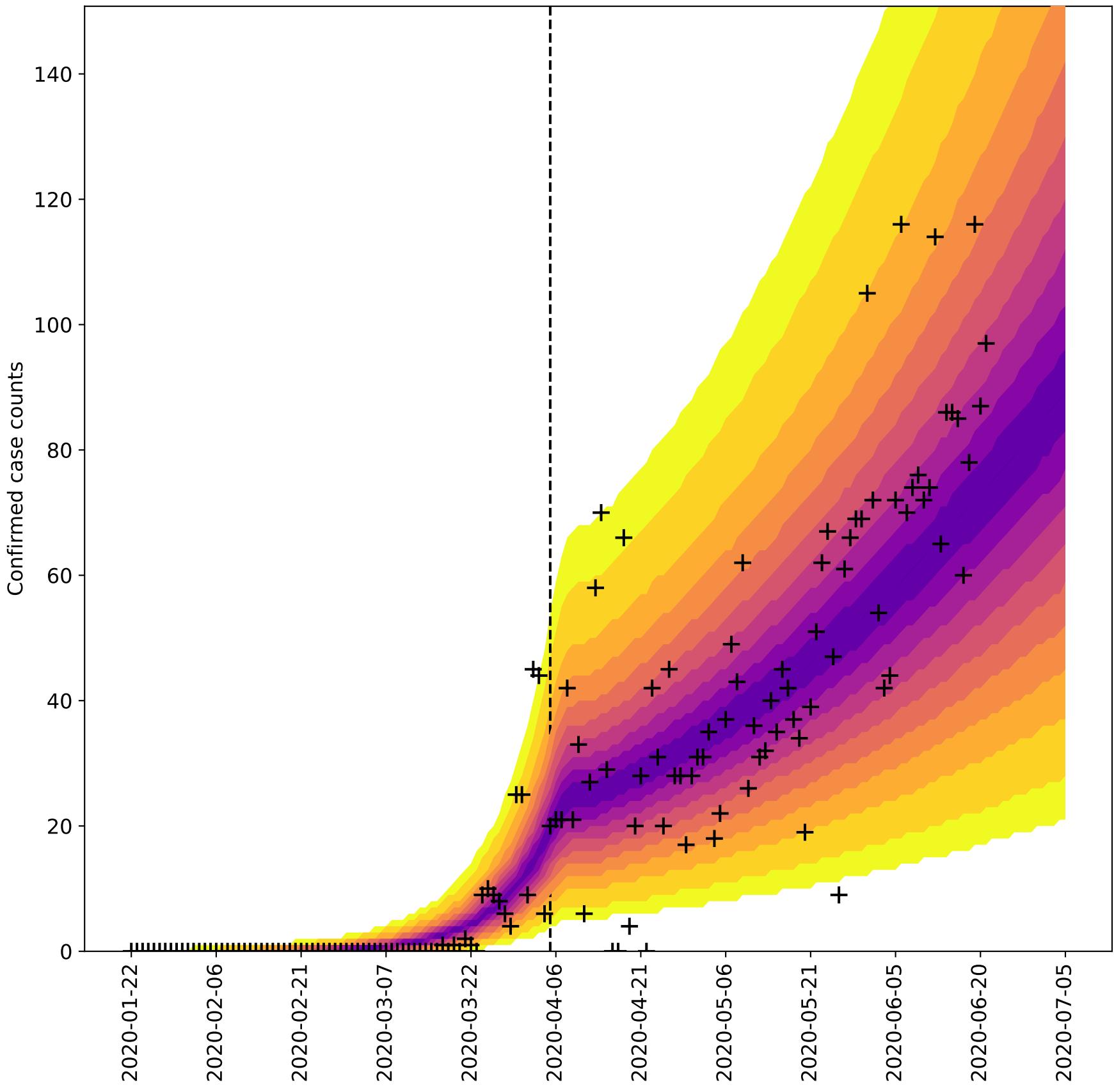
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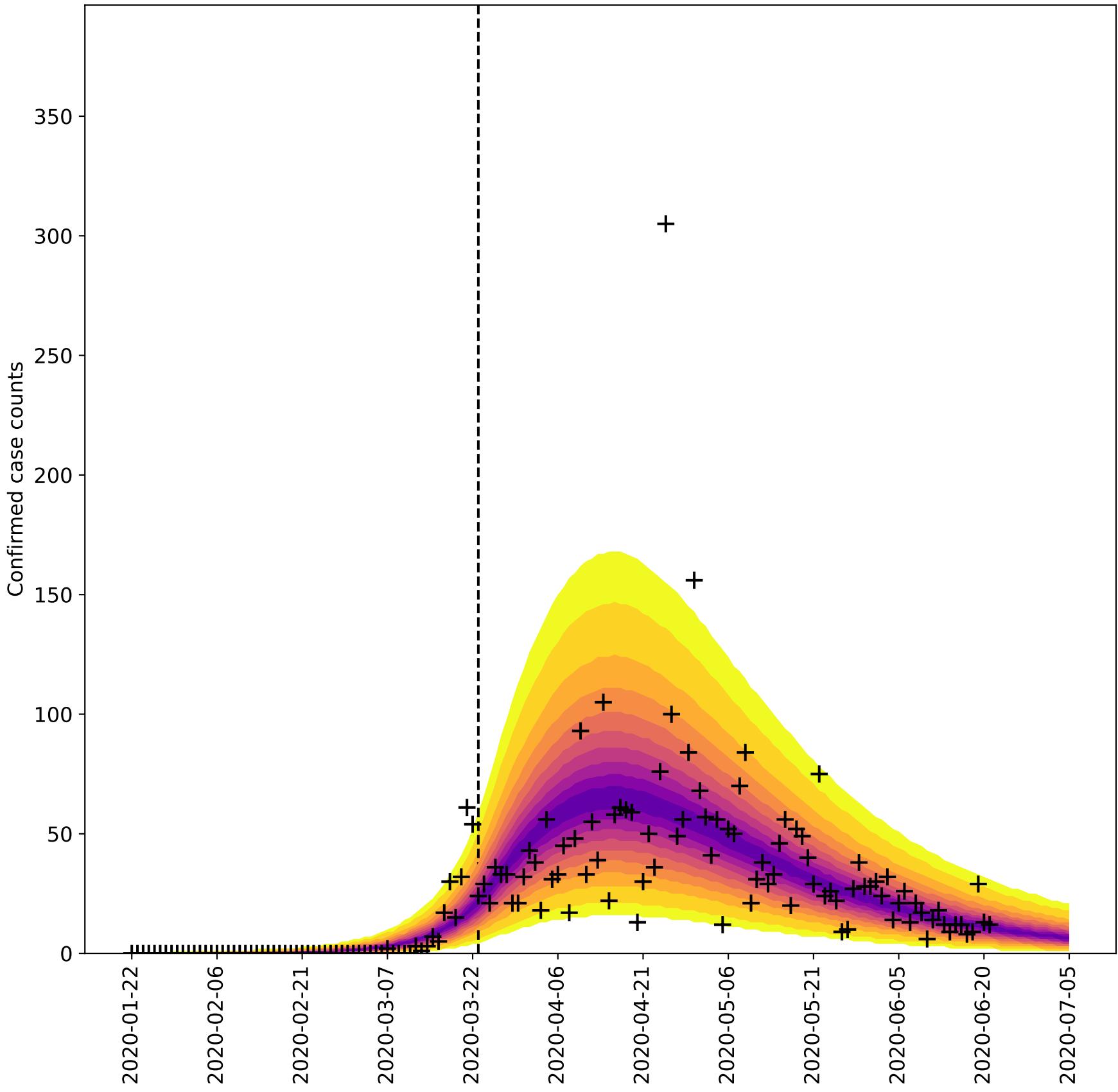
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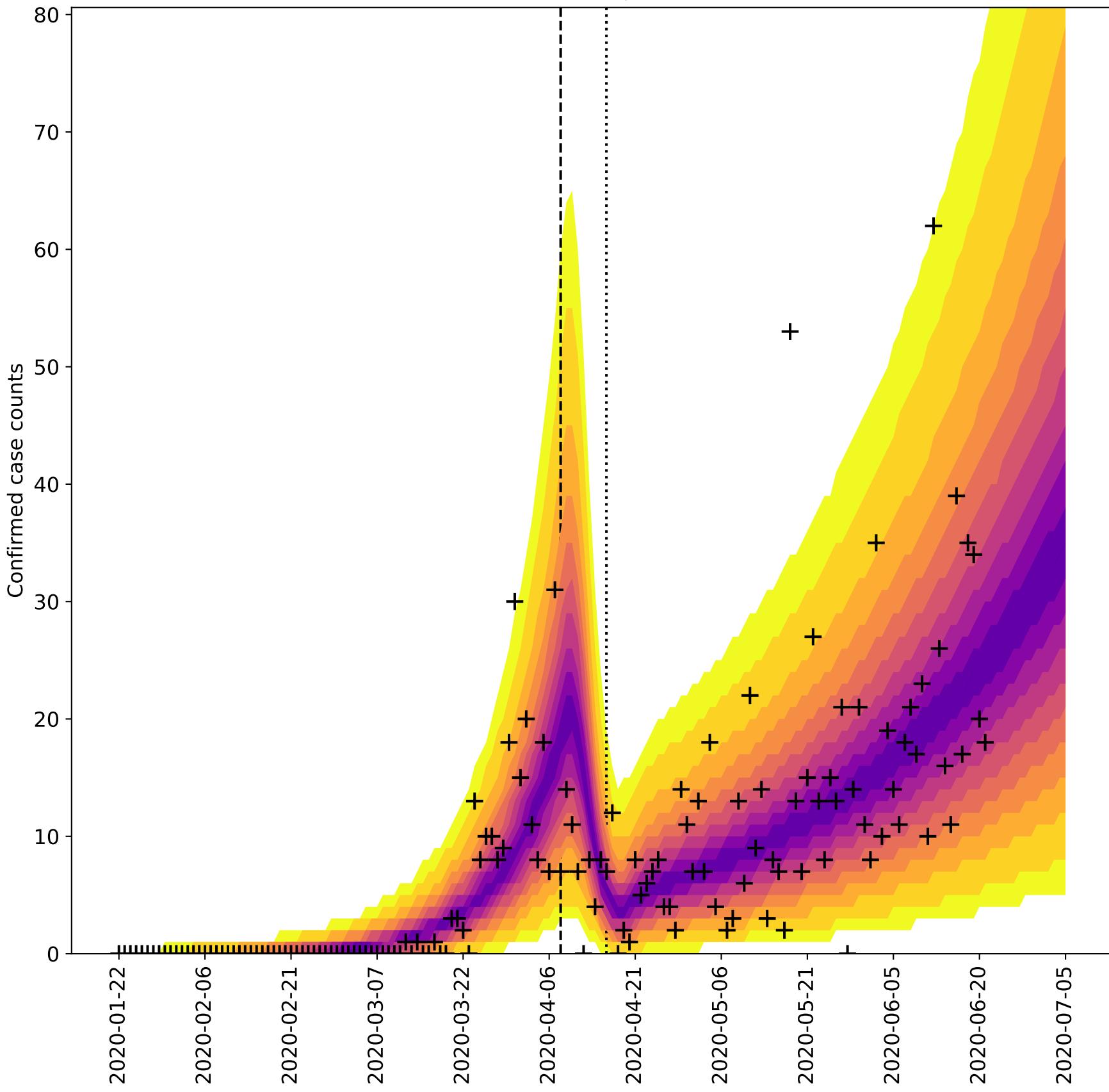
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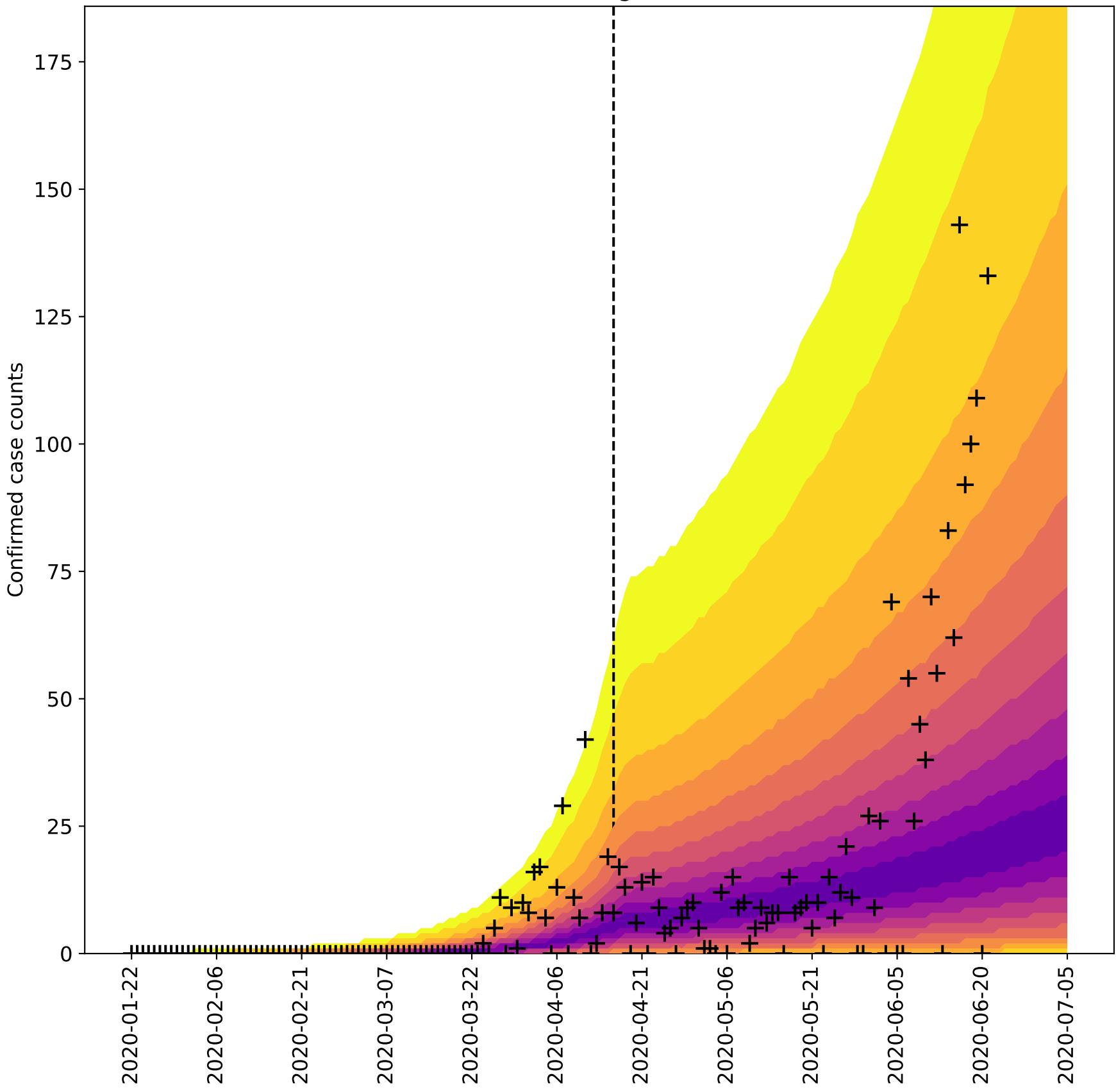
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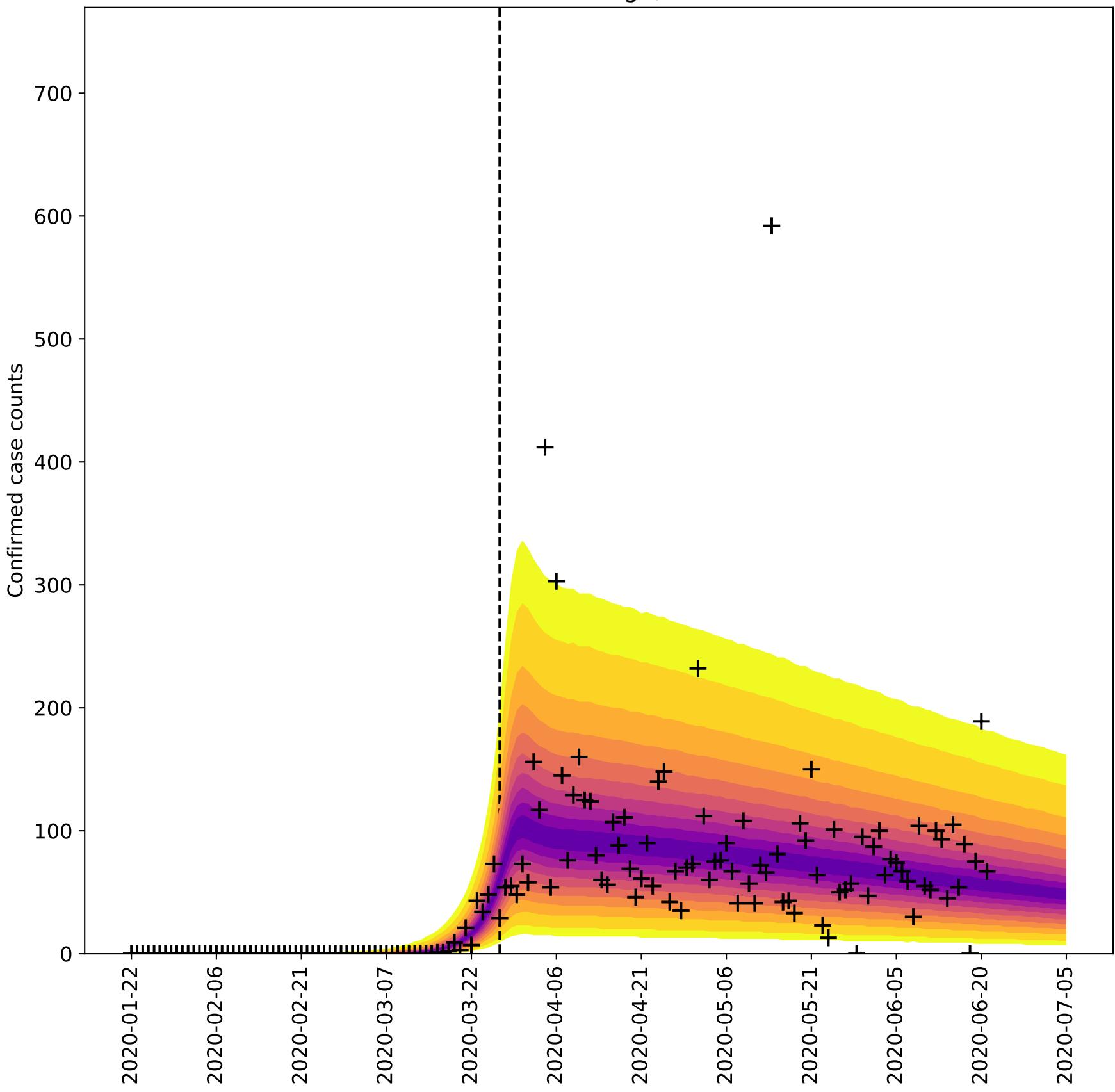
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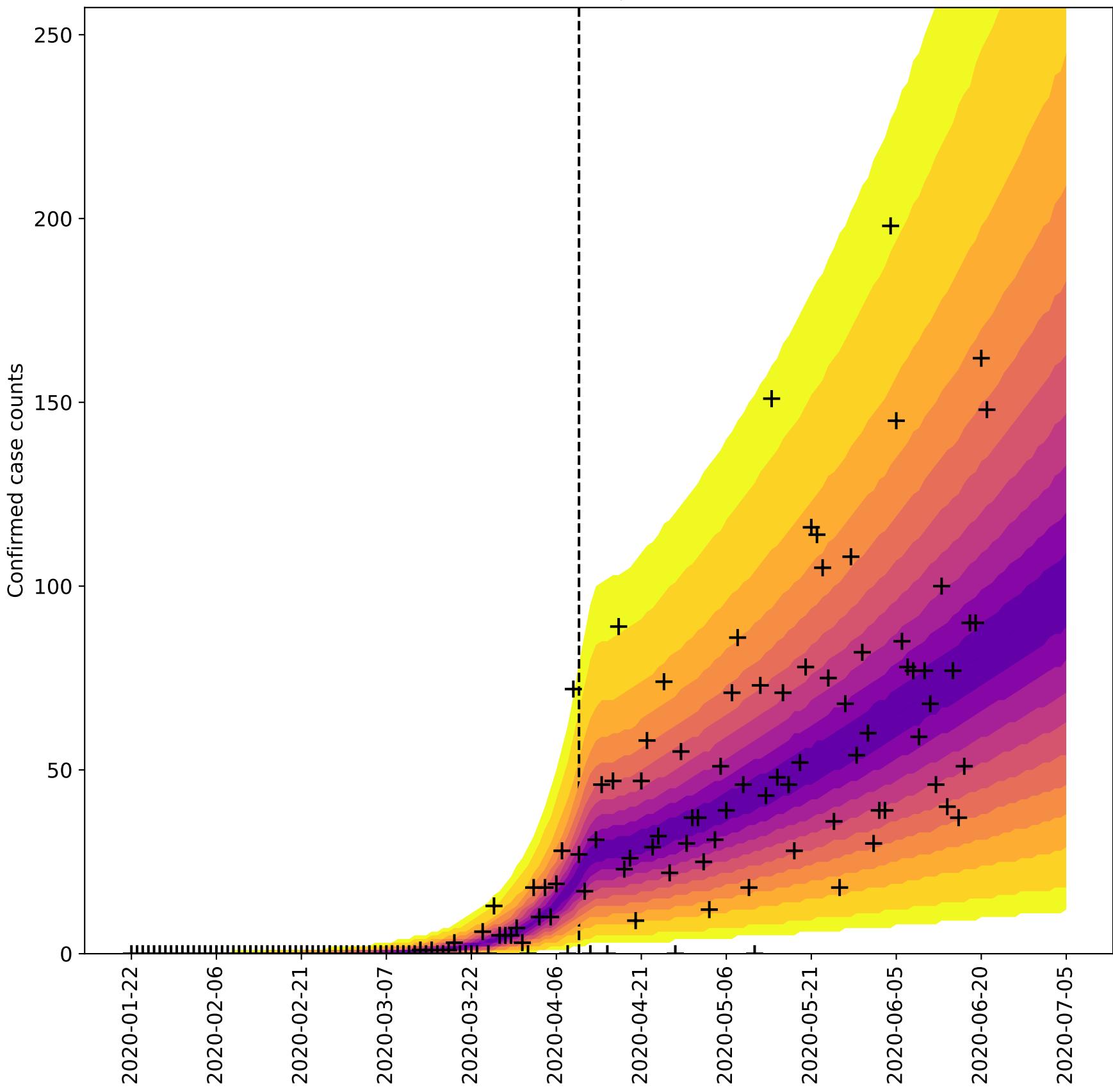
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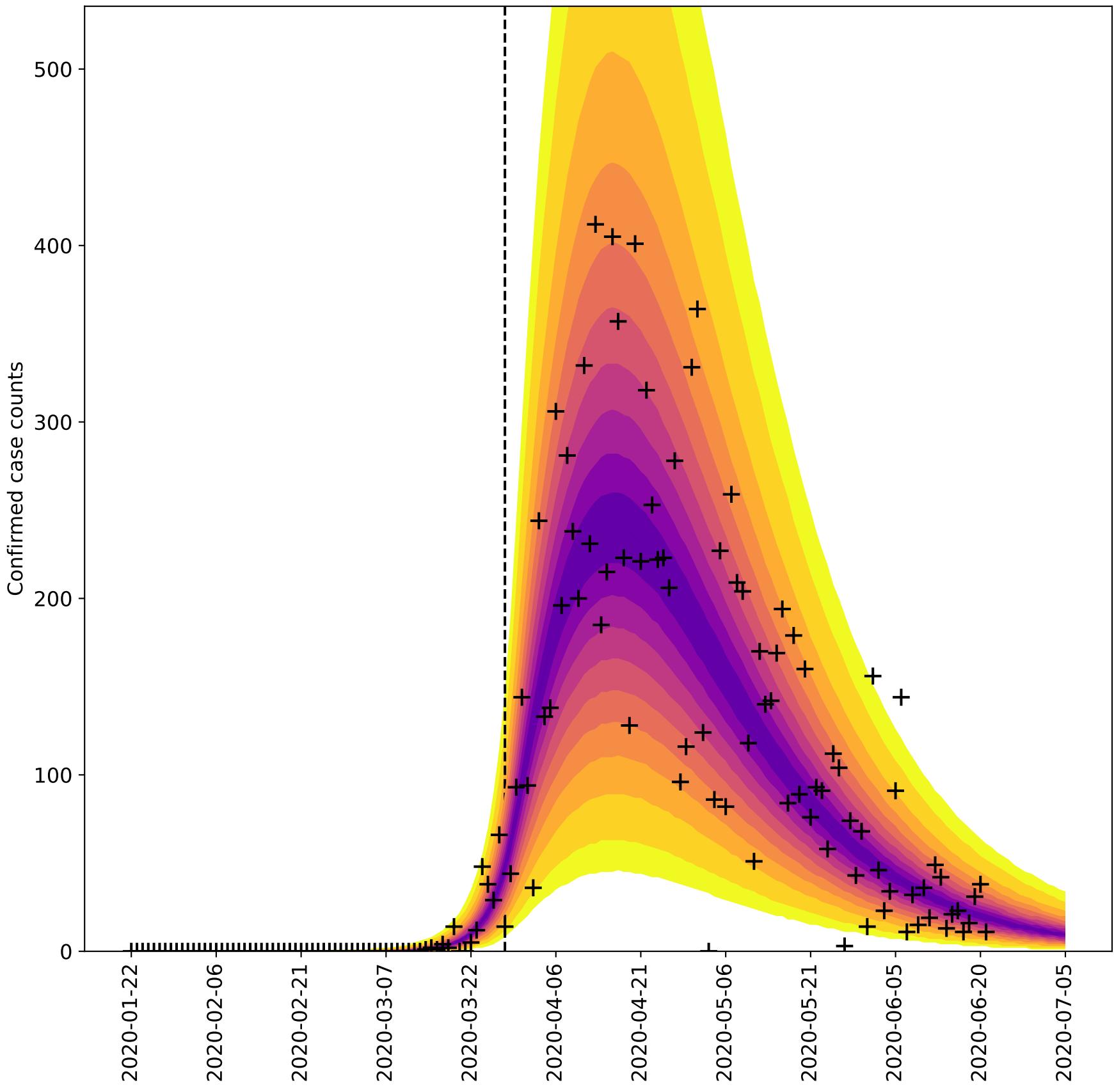
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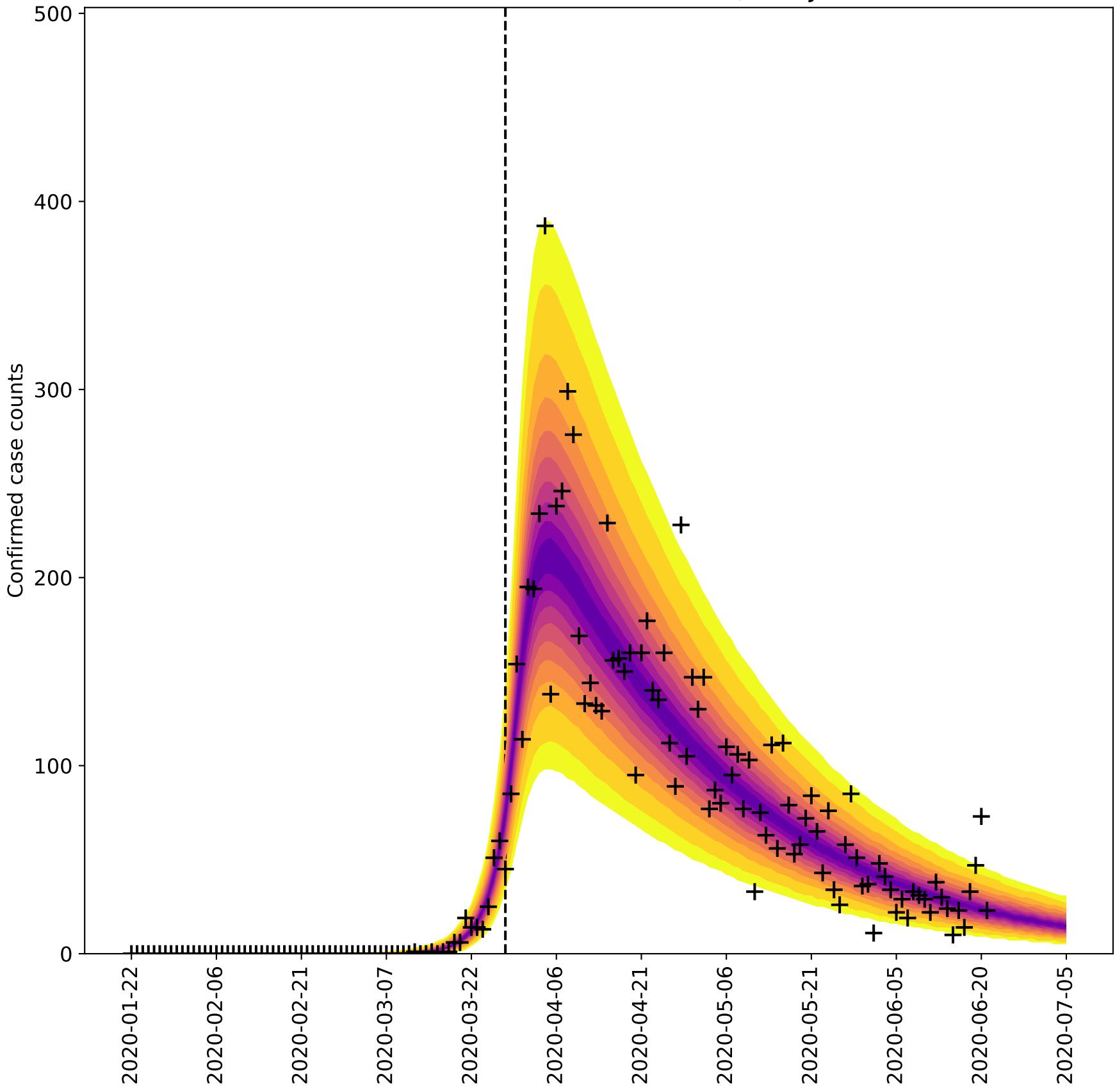
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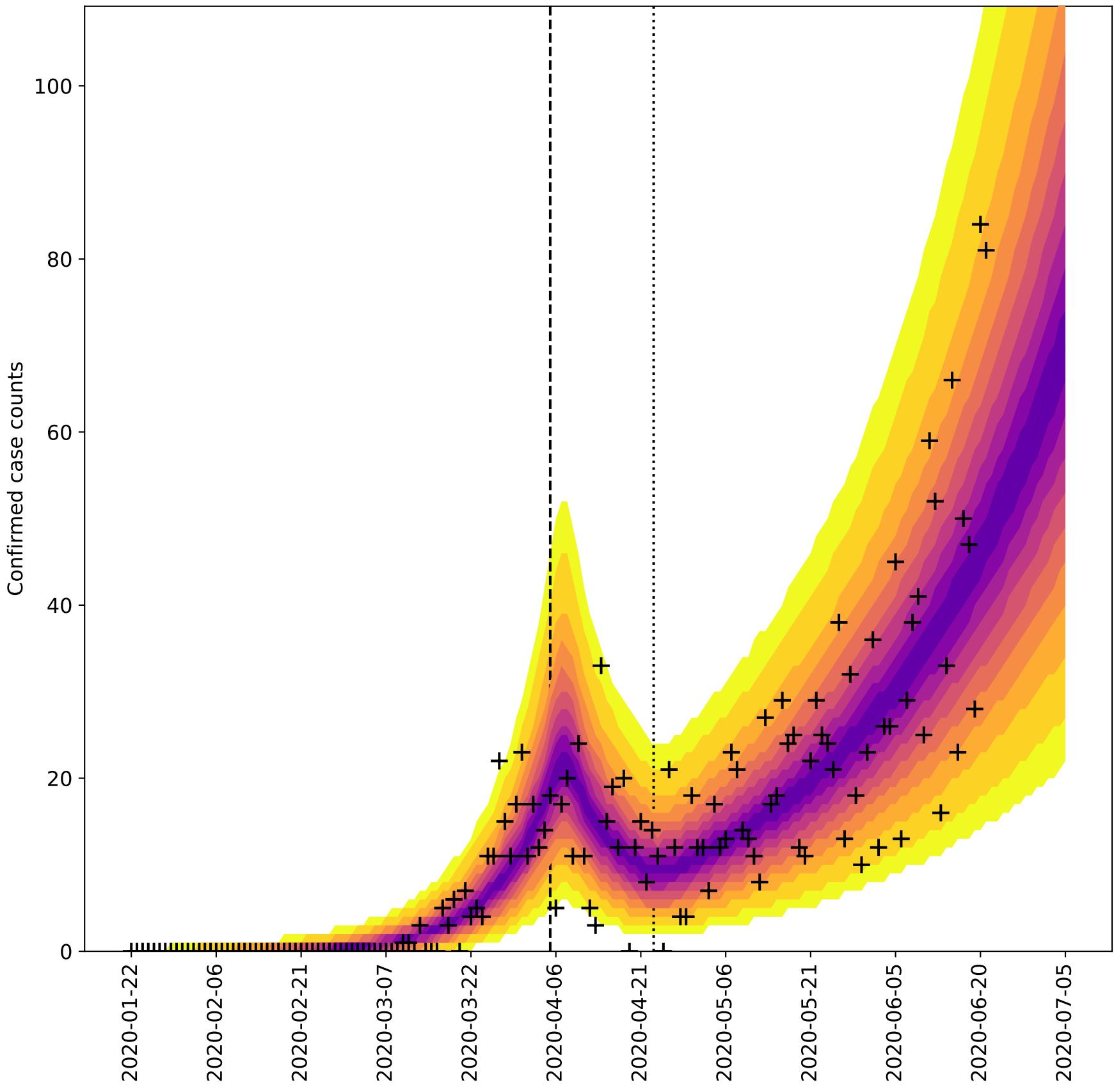
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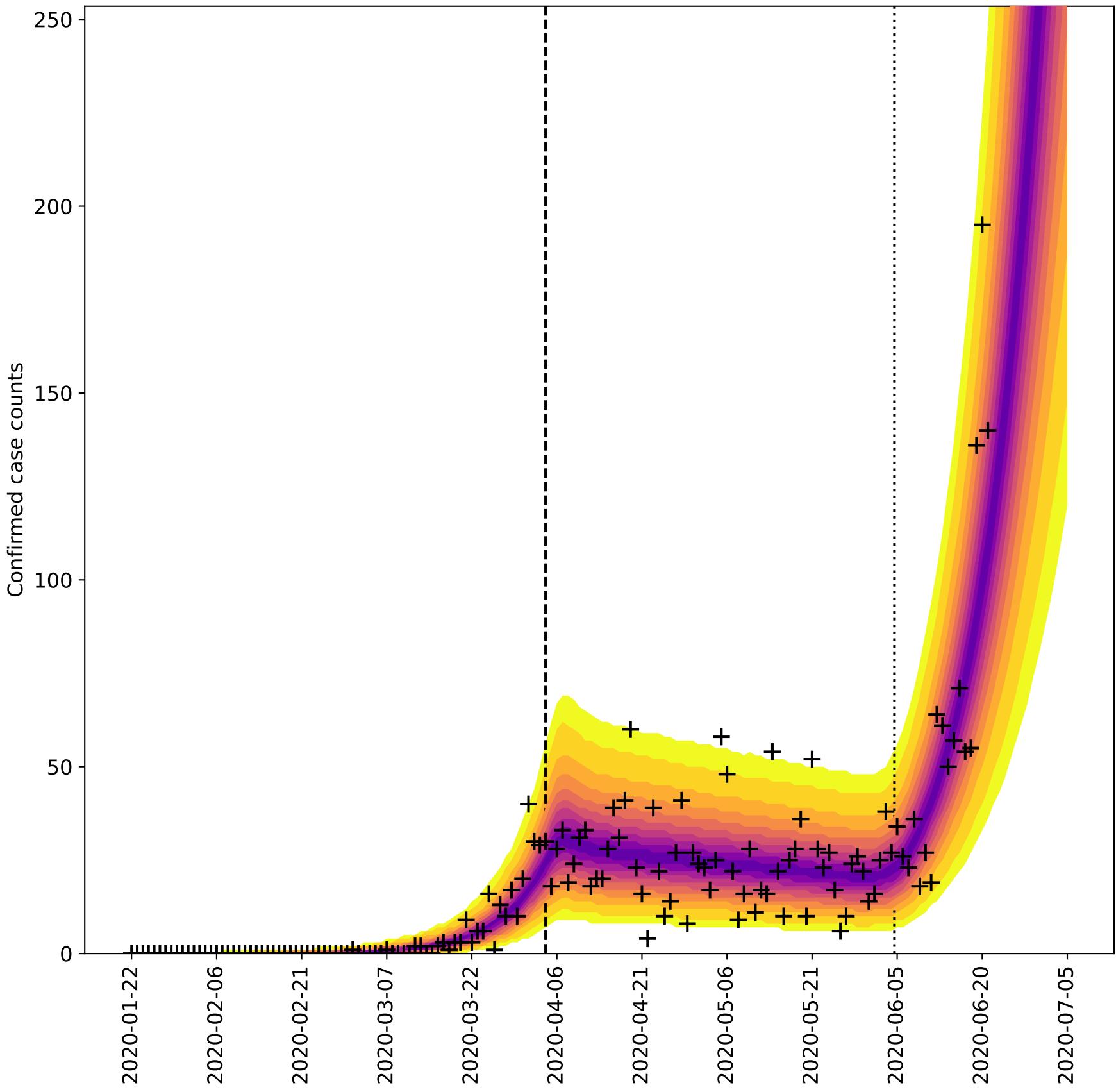
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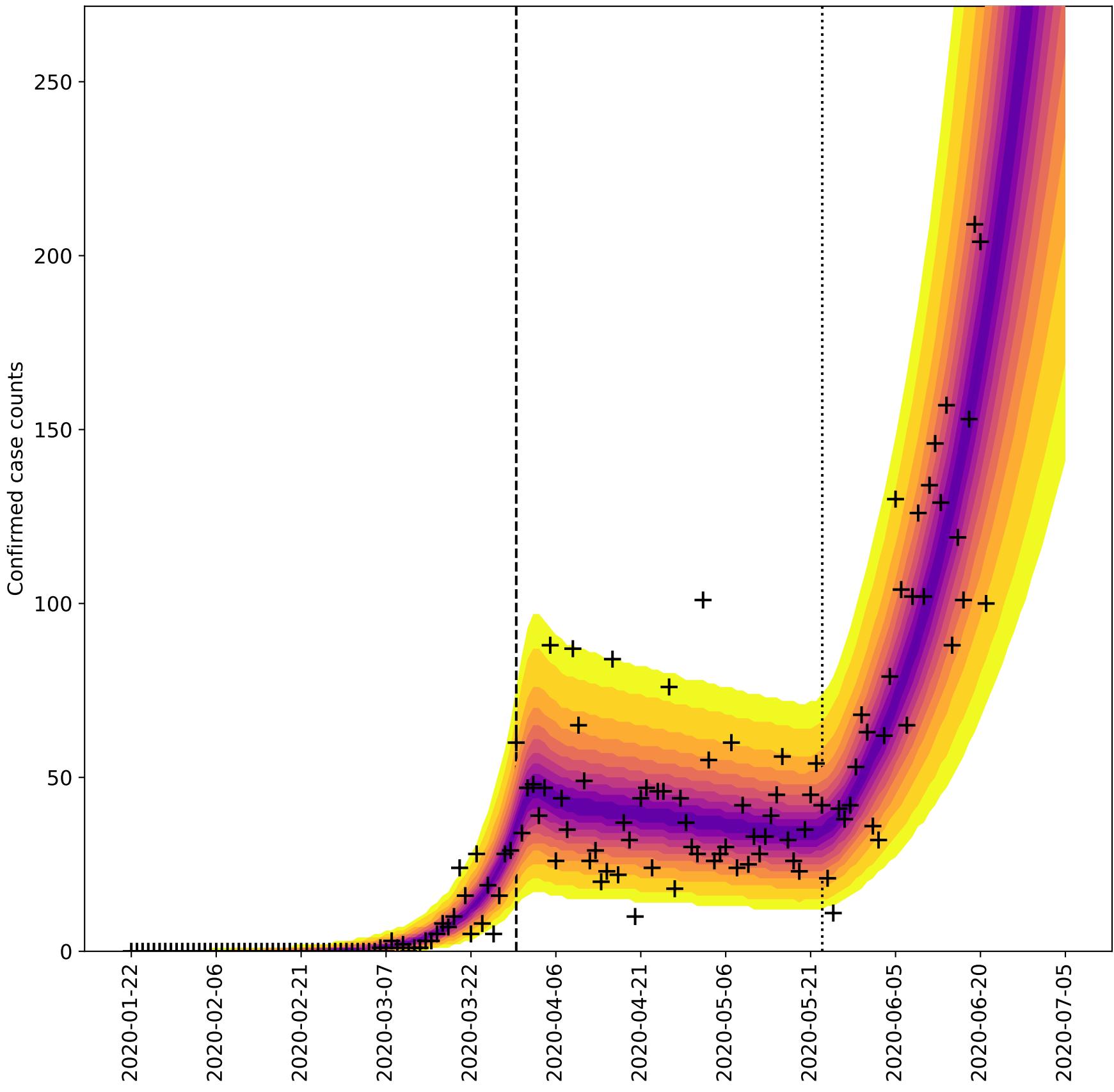
Oxnard-Thousand Oaks-Ventura, CA



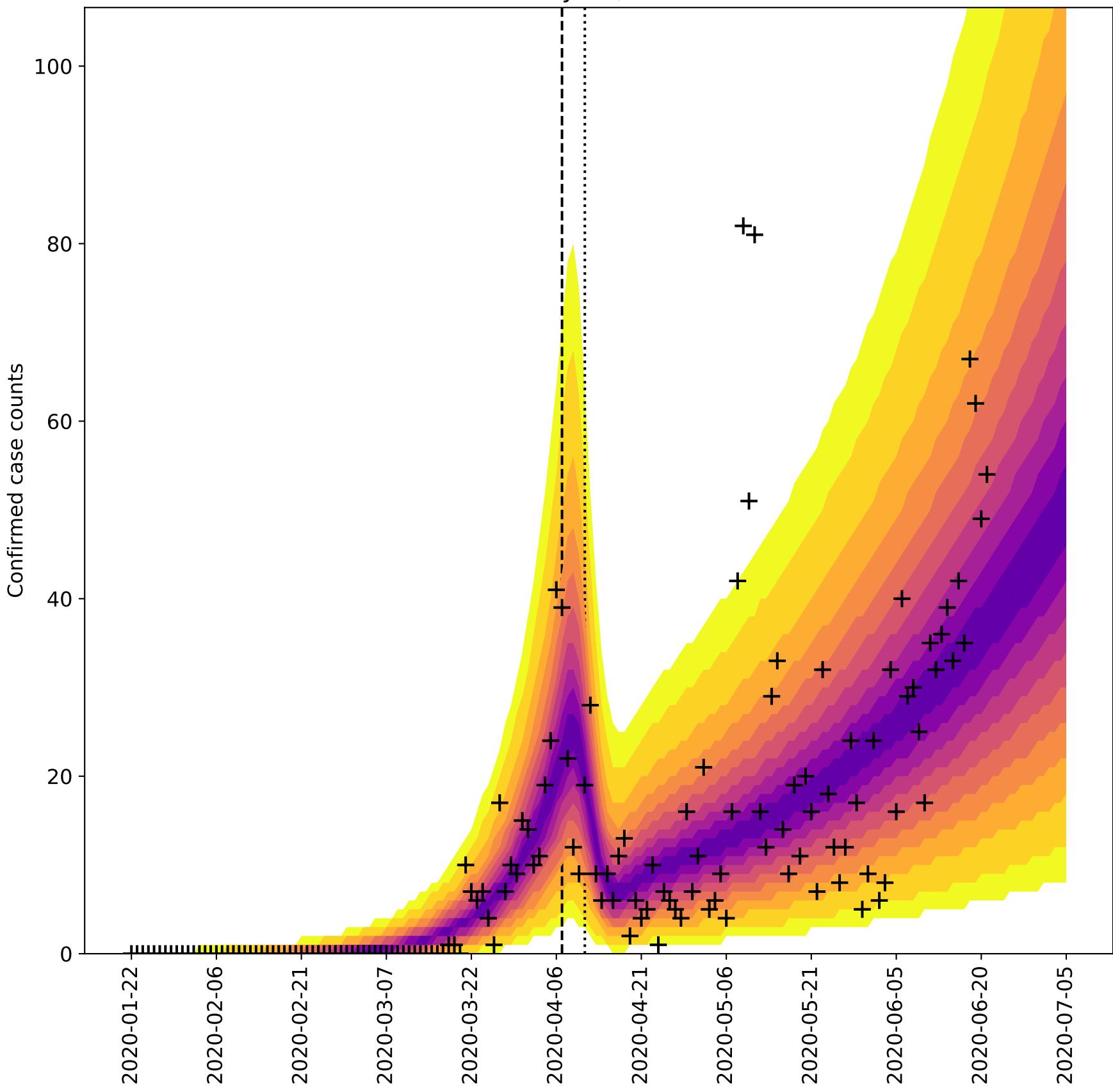
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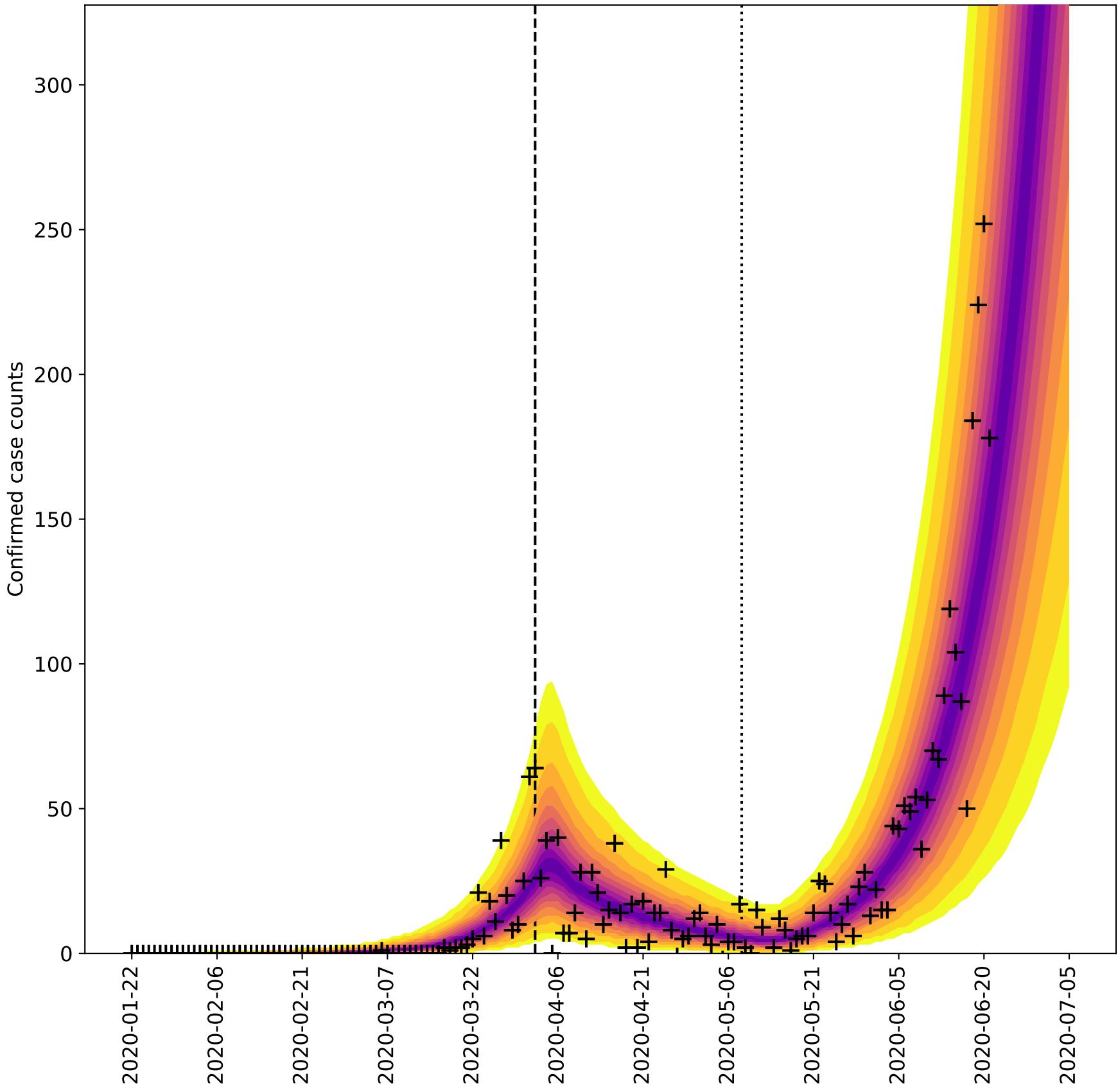
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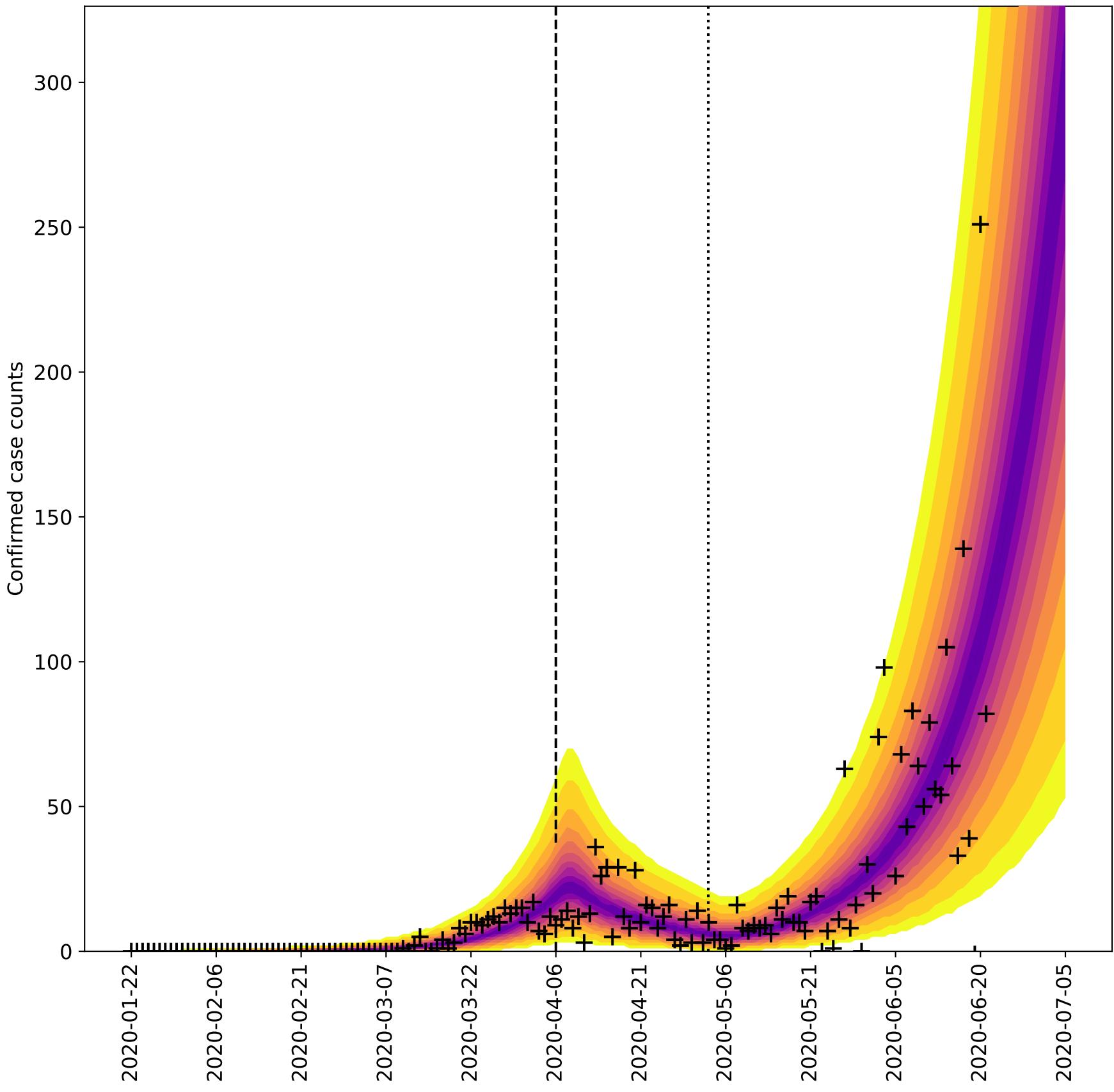
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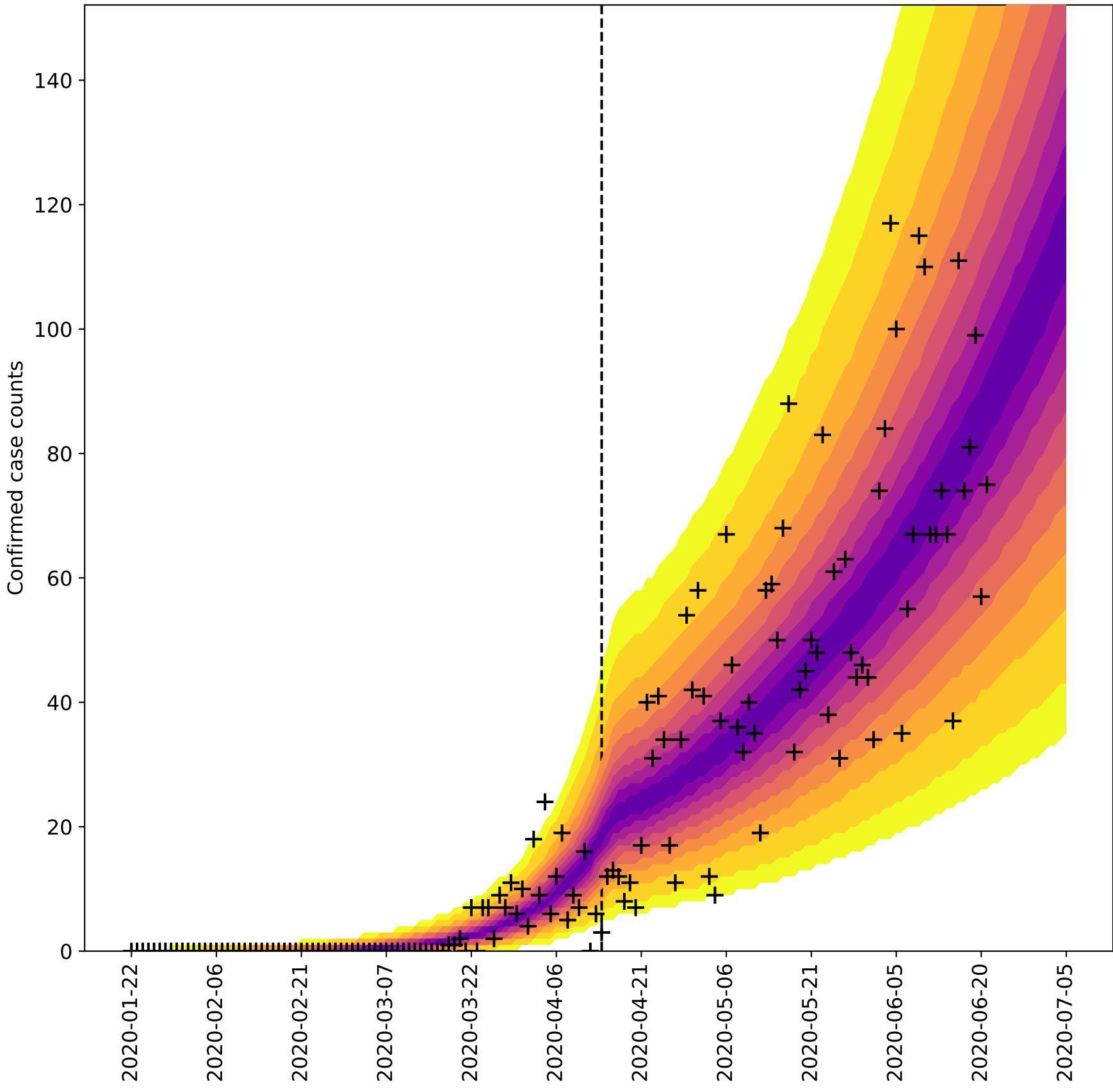
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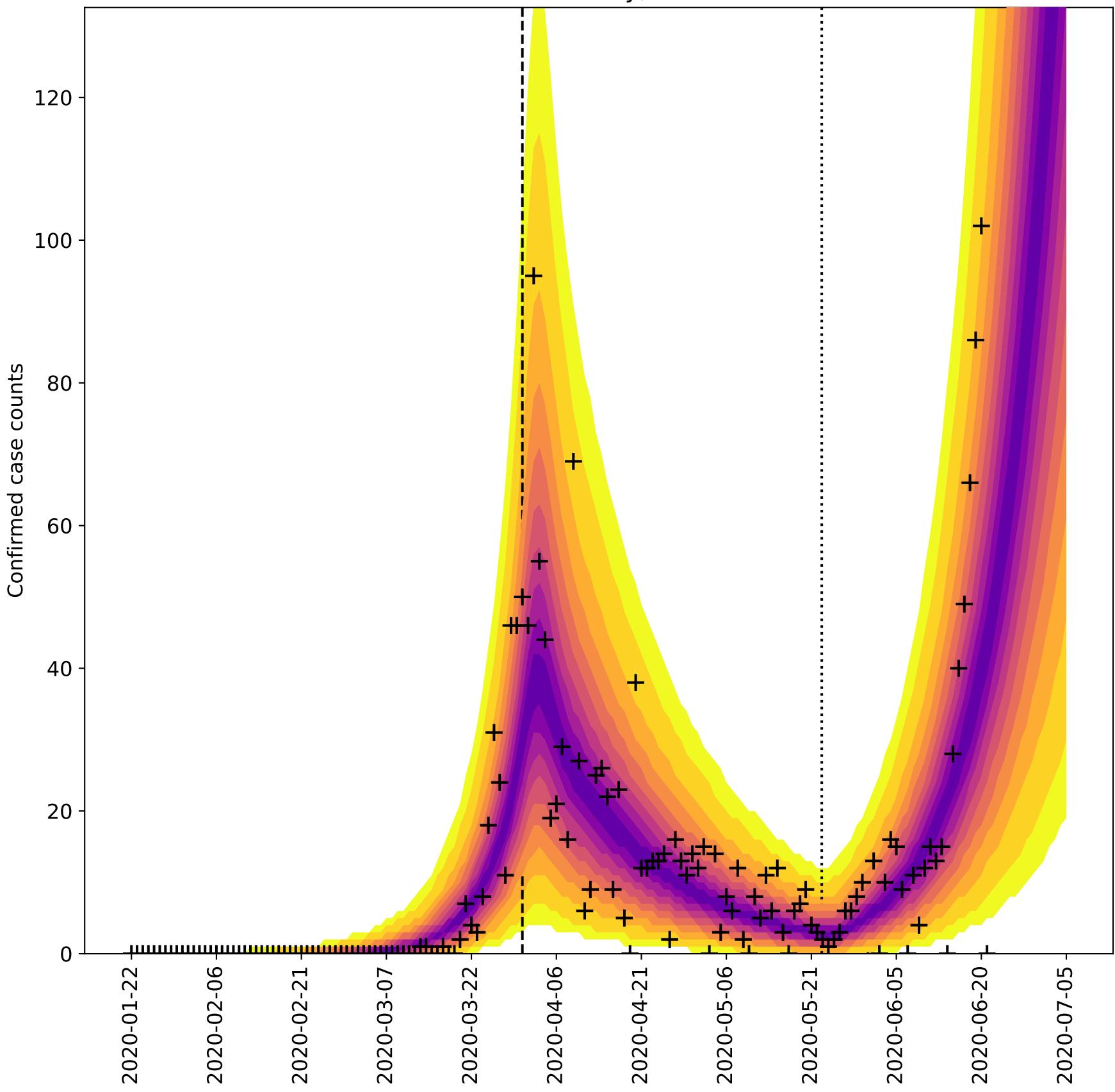
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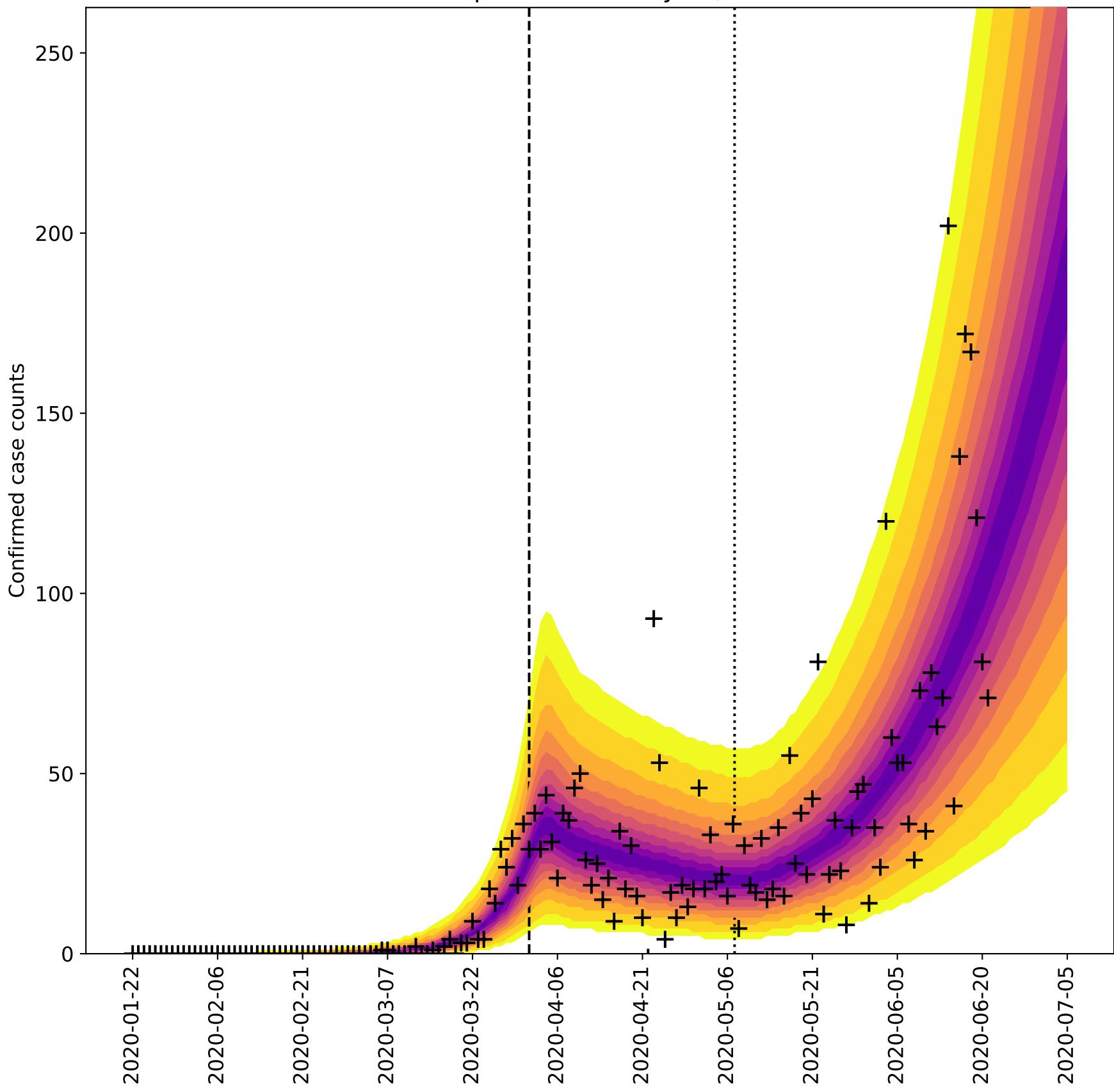
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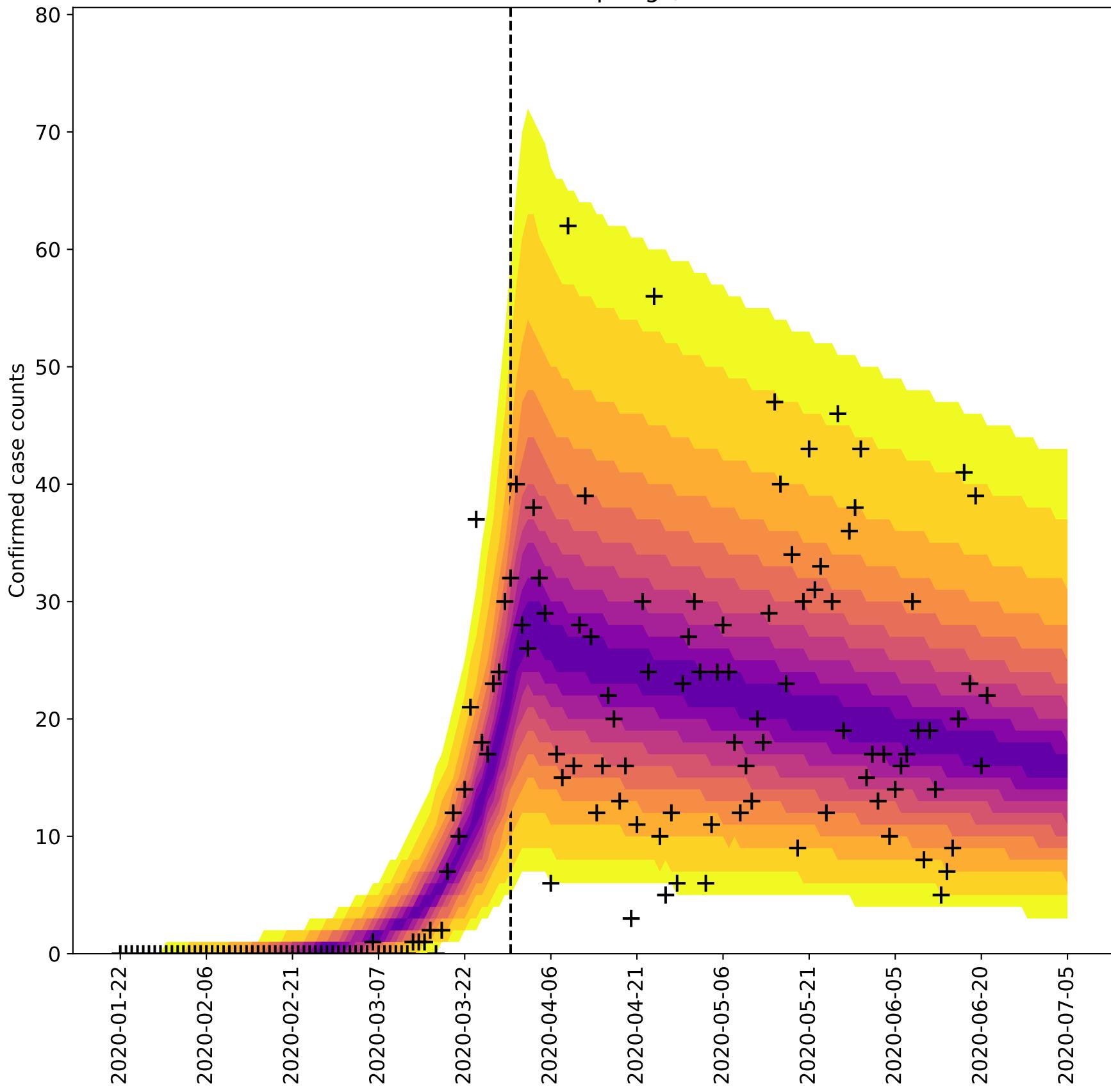
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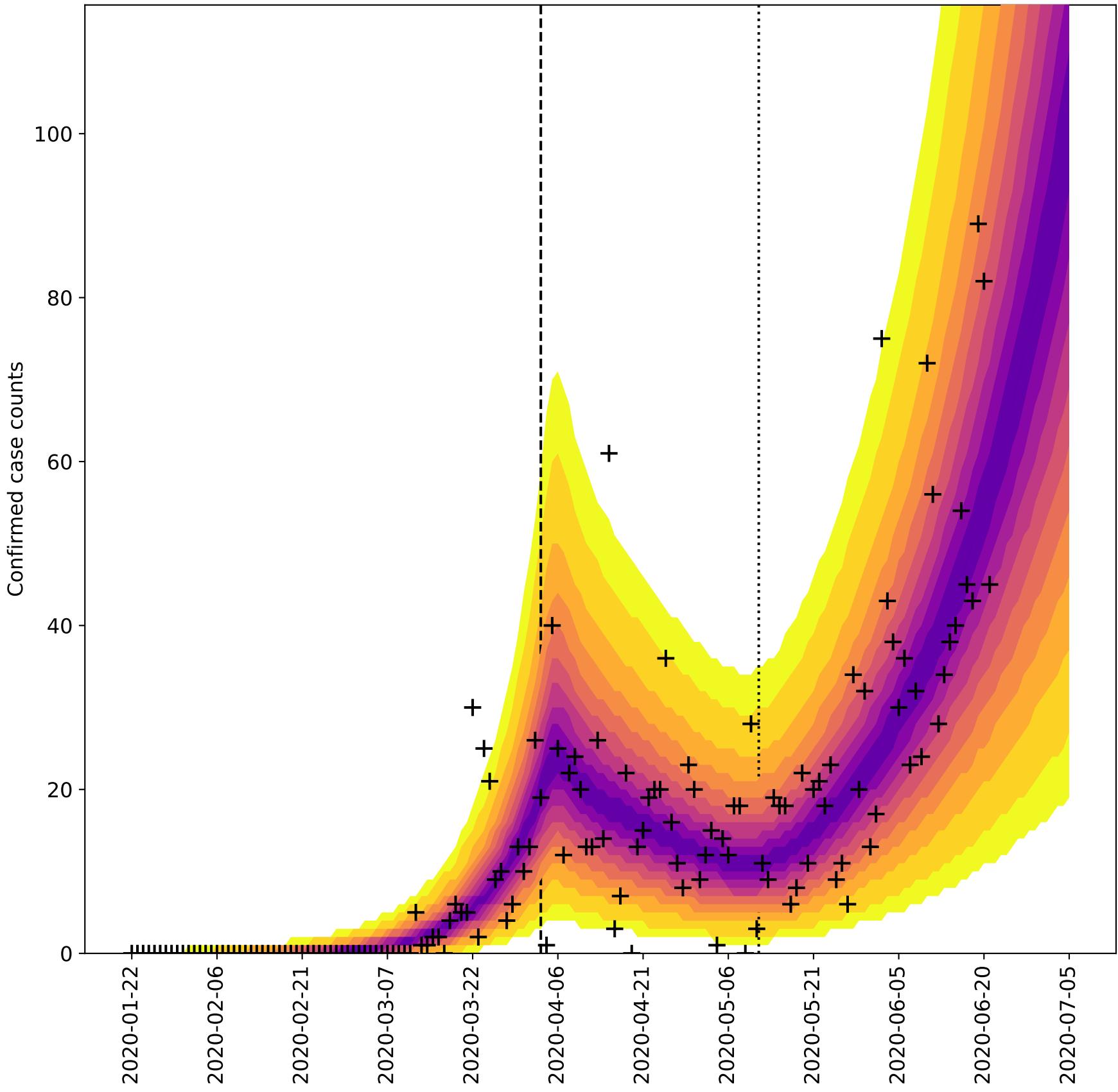
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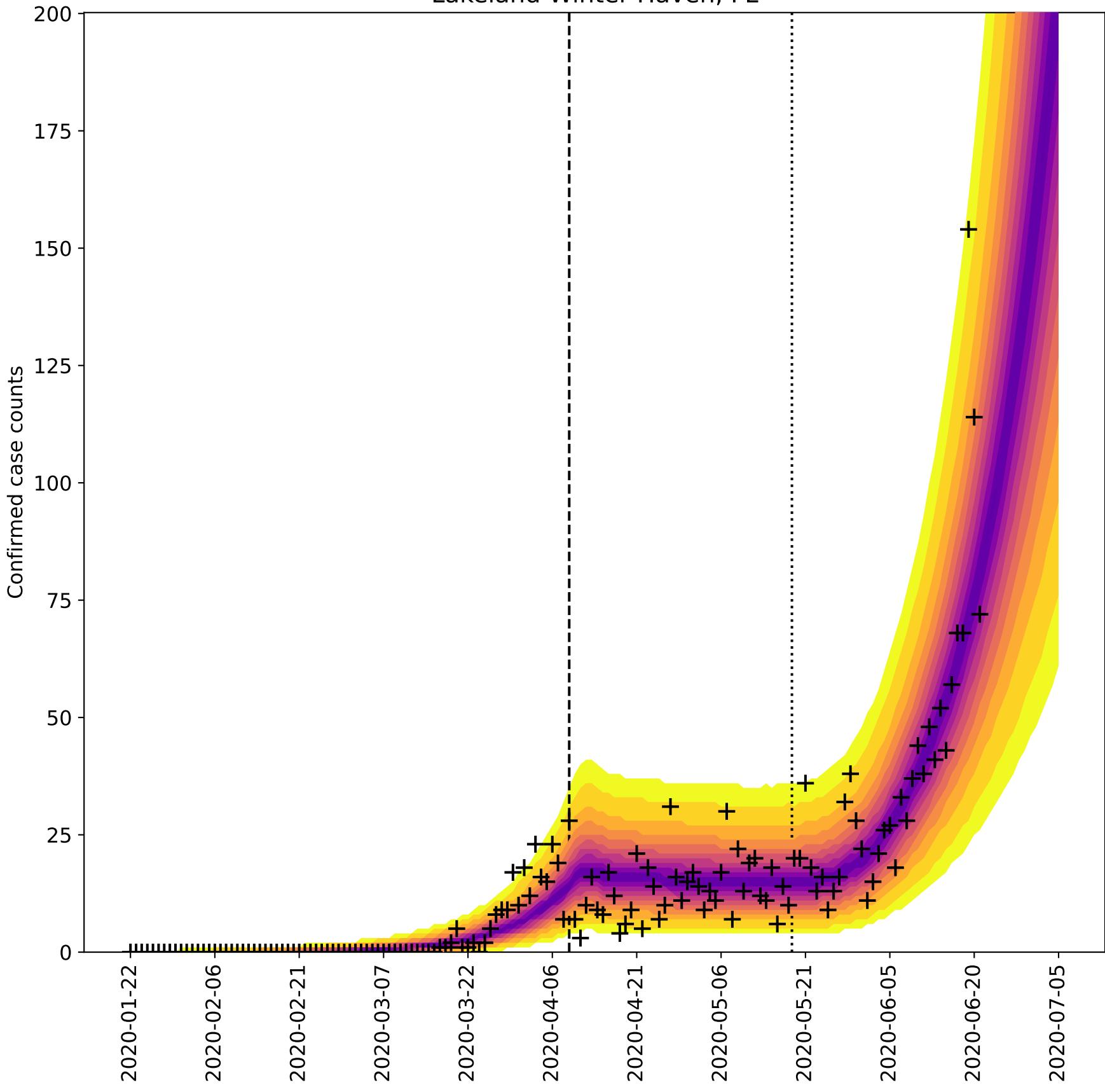
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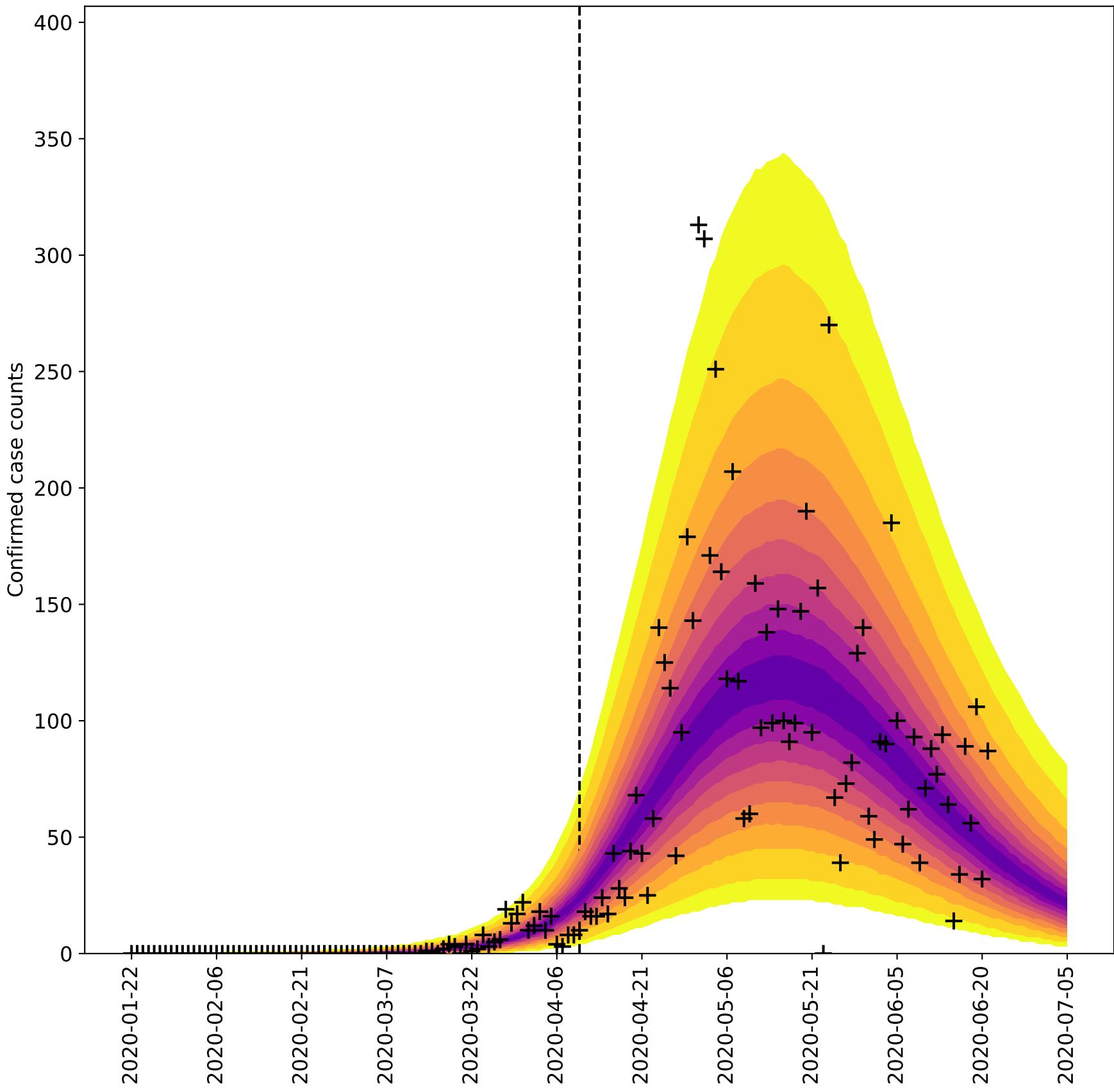
Little Rock-North Little Rock-Conway, AR



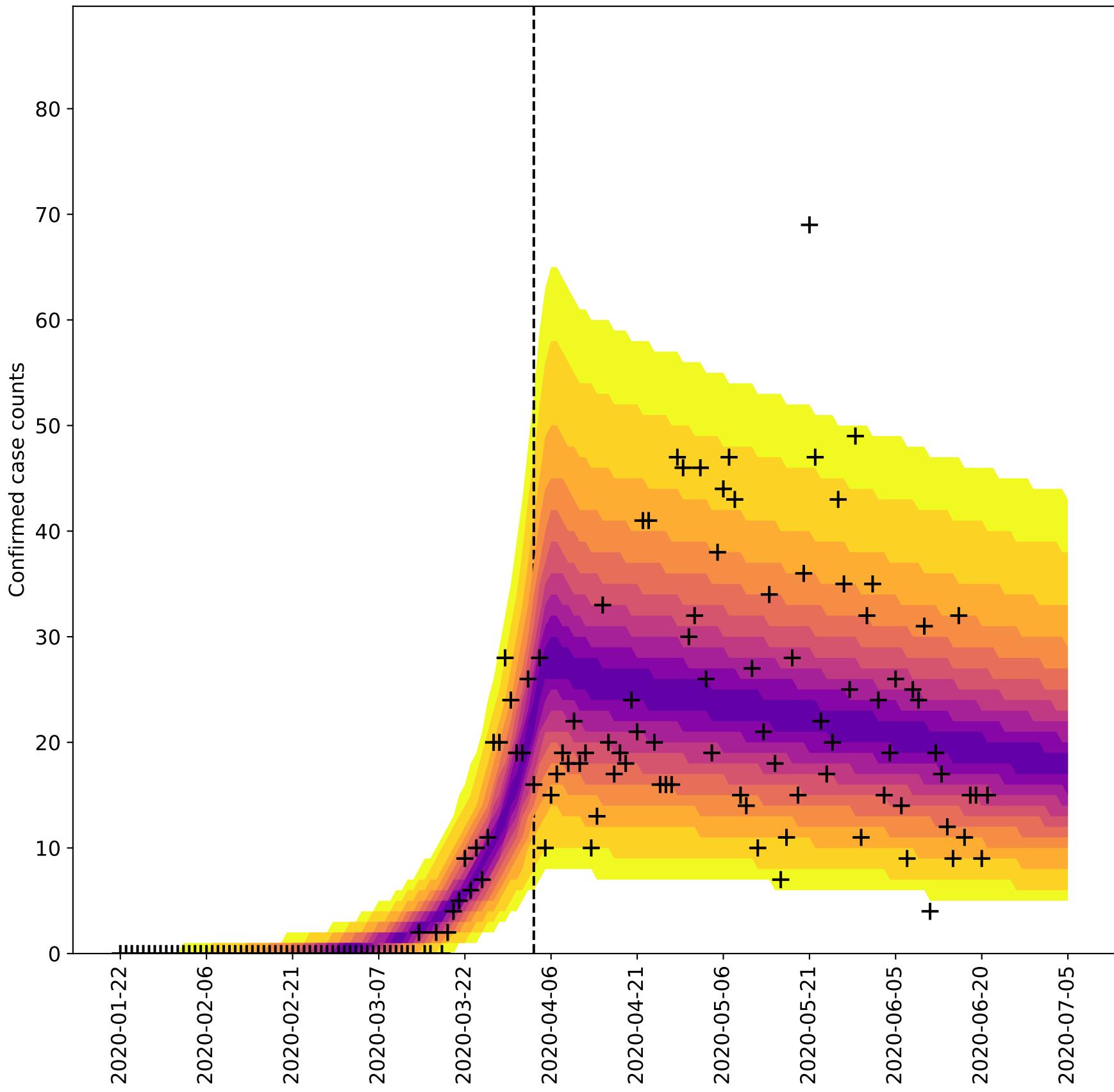
Lakeland-Winter Haven, FL



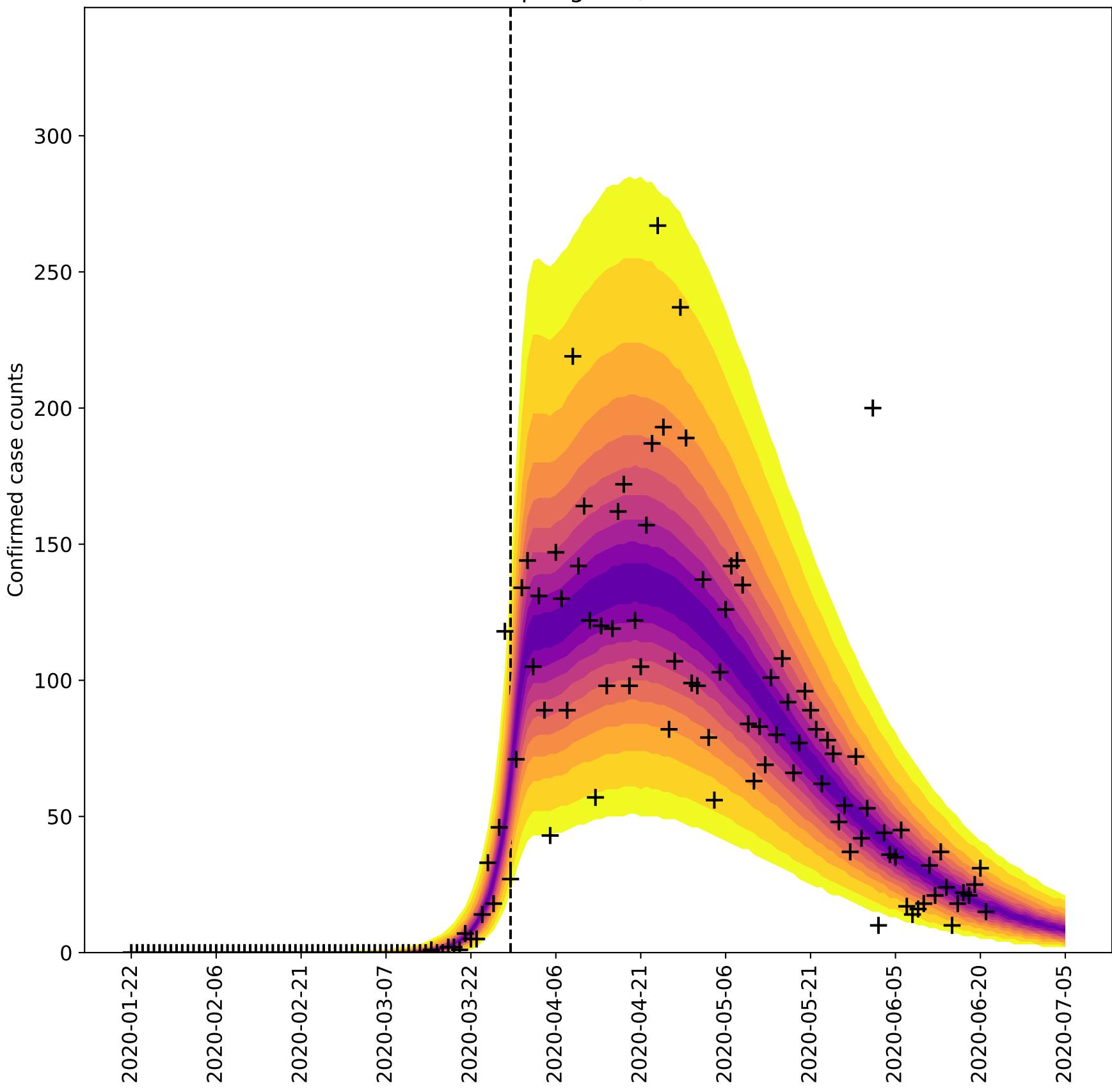
Des Moines-West Des Moines, IA



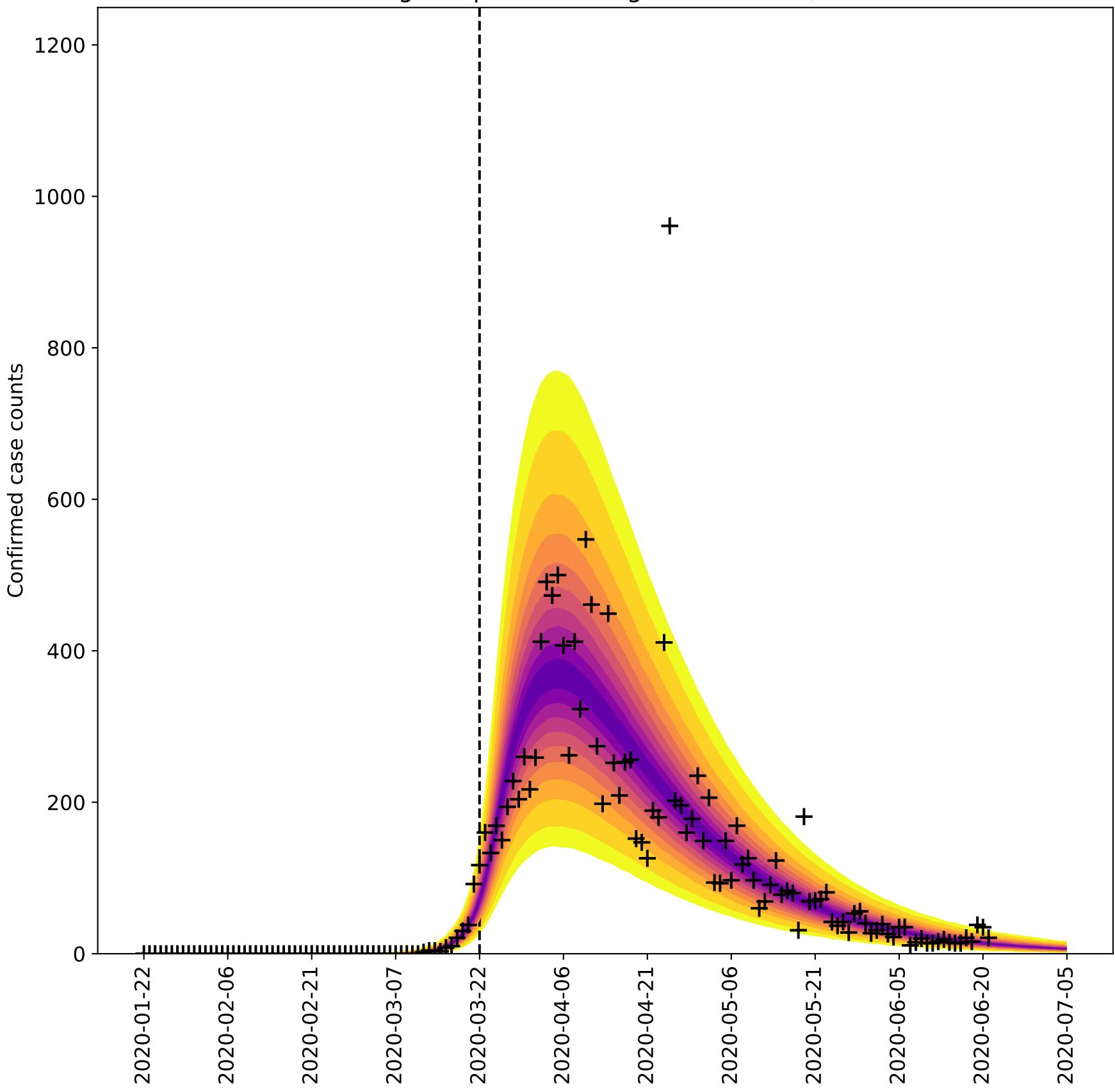
Akron, OH



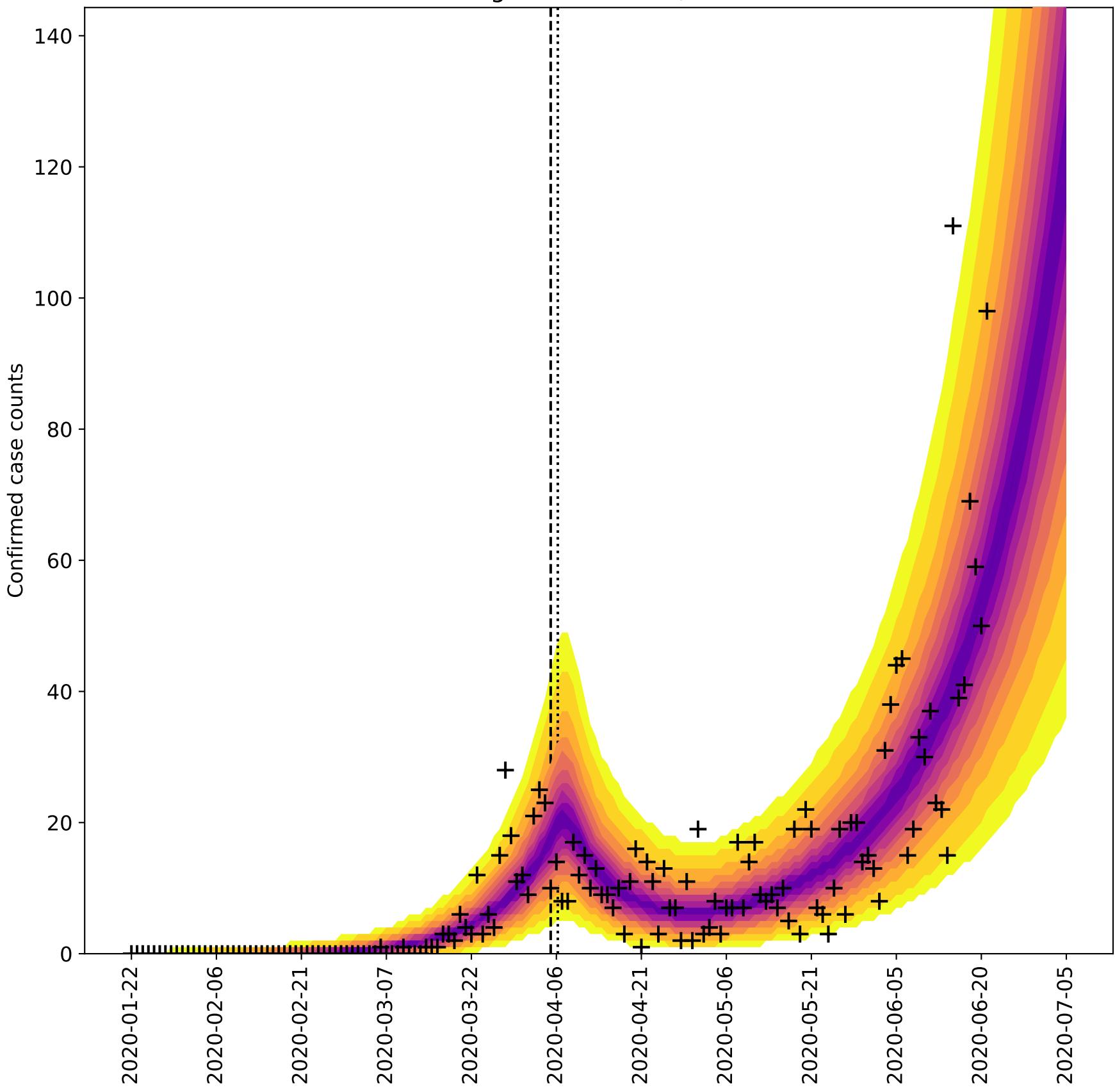
Springfield, MA



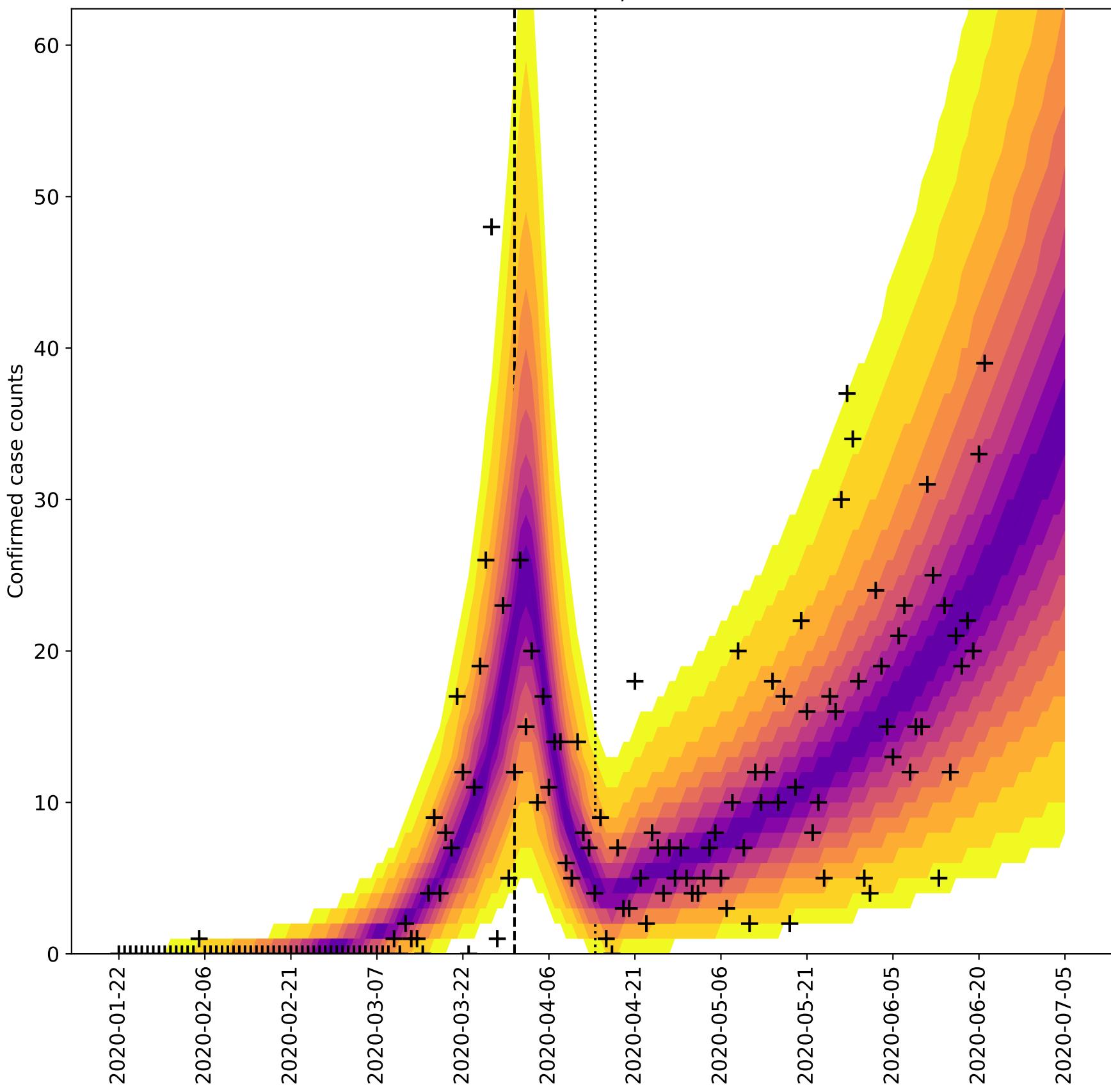
Poughkeepsie-Newburgh-Middletown, NY



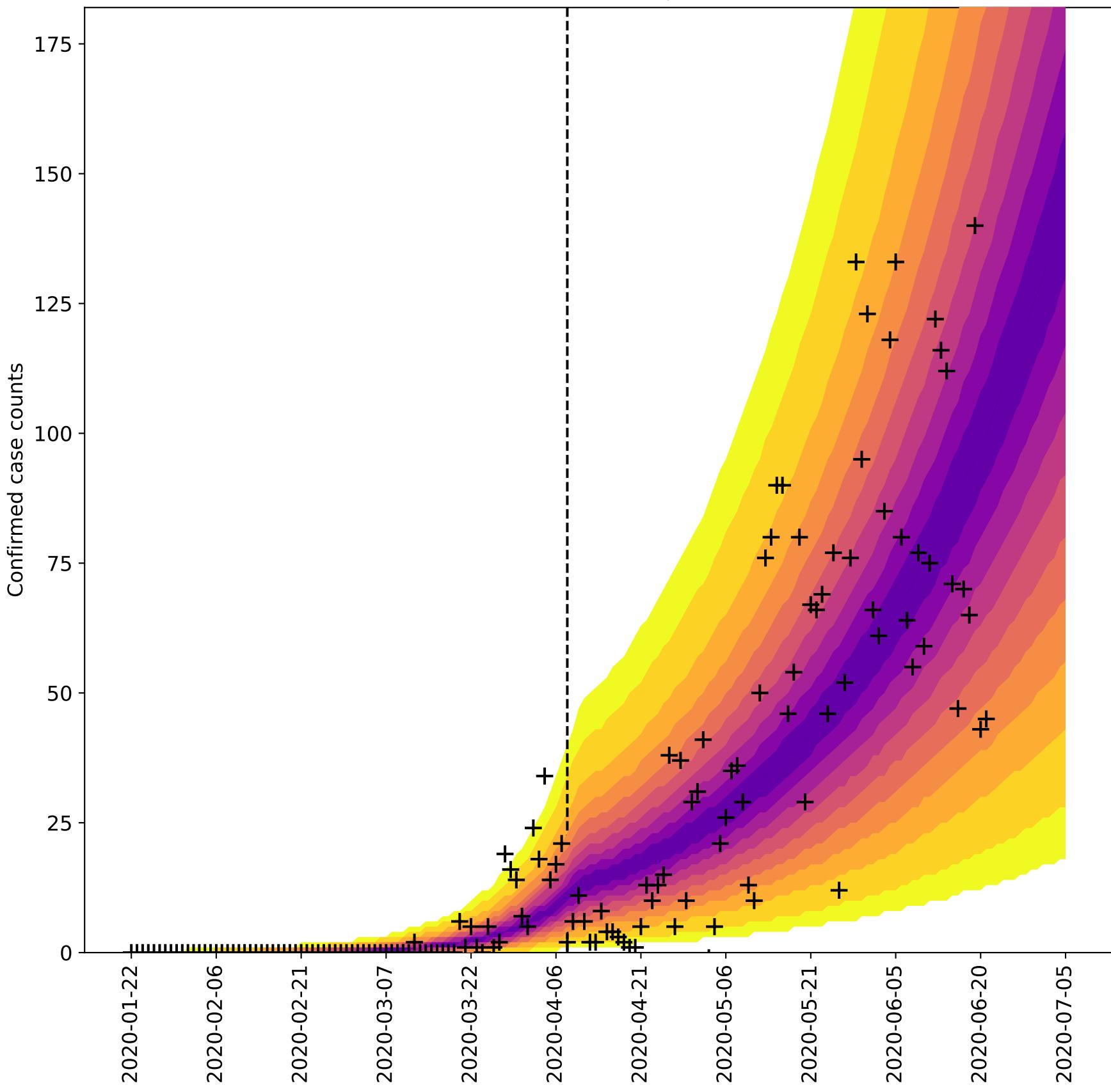
Ogden-Clearfield, UT



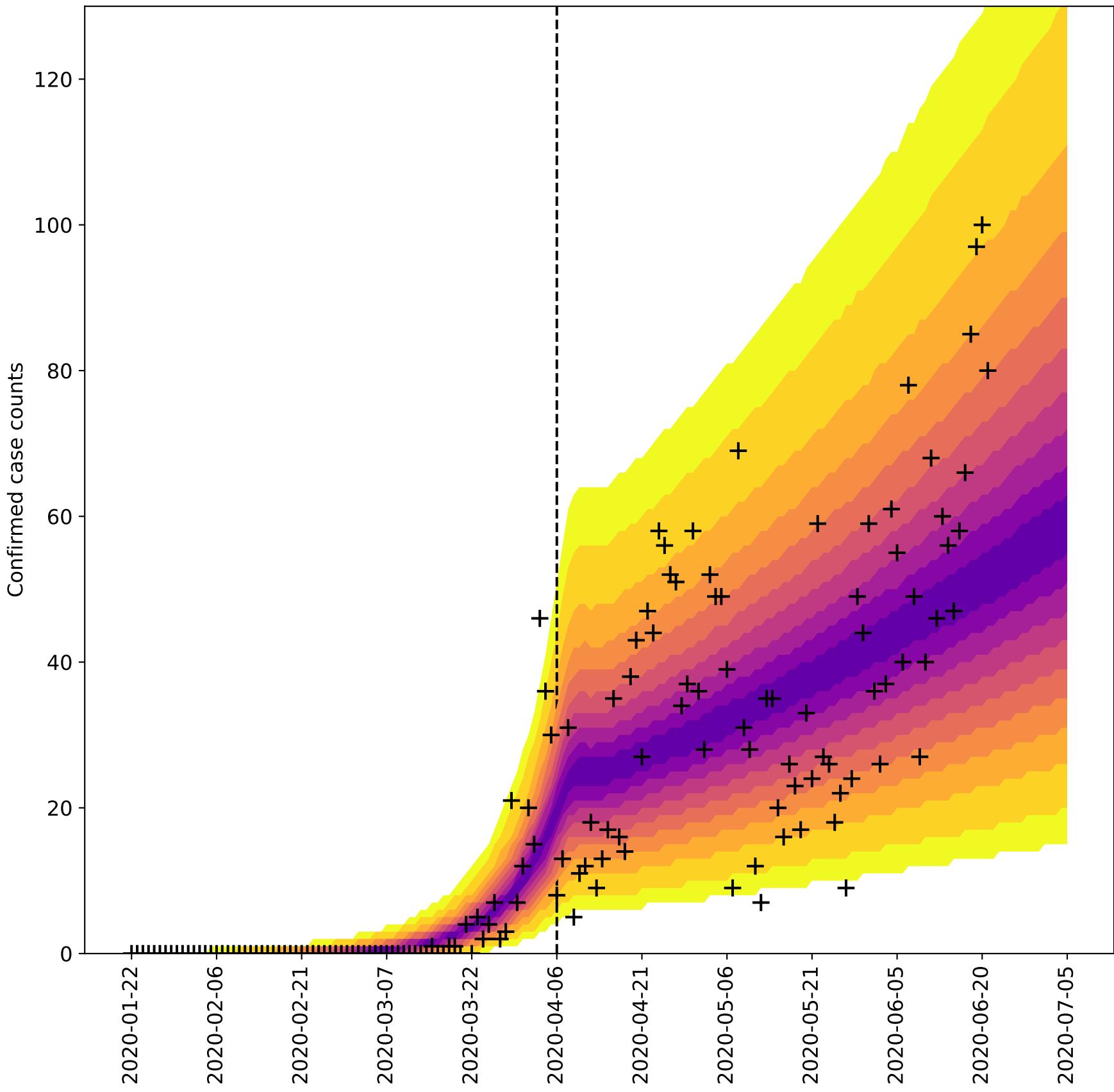
Madison, WI



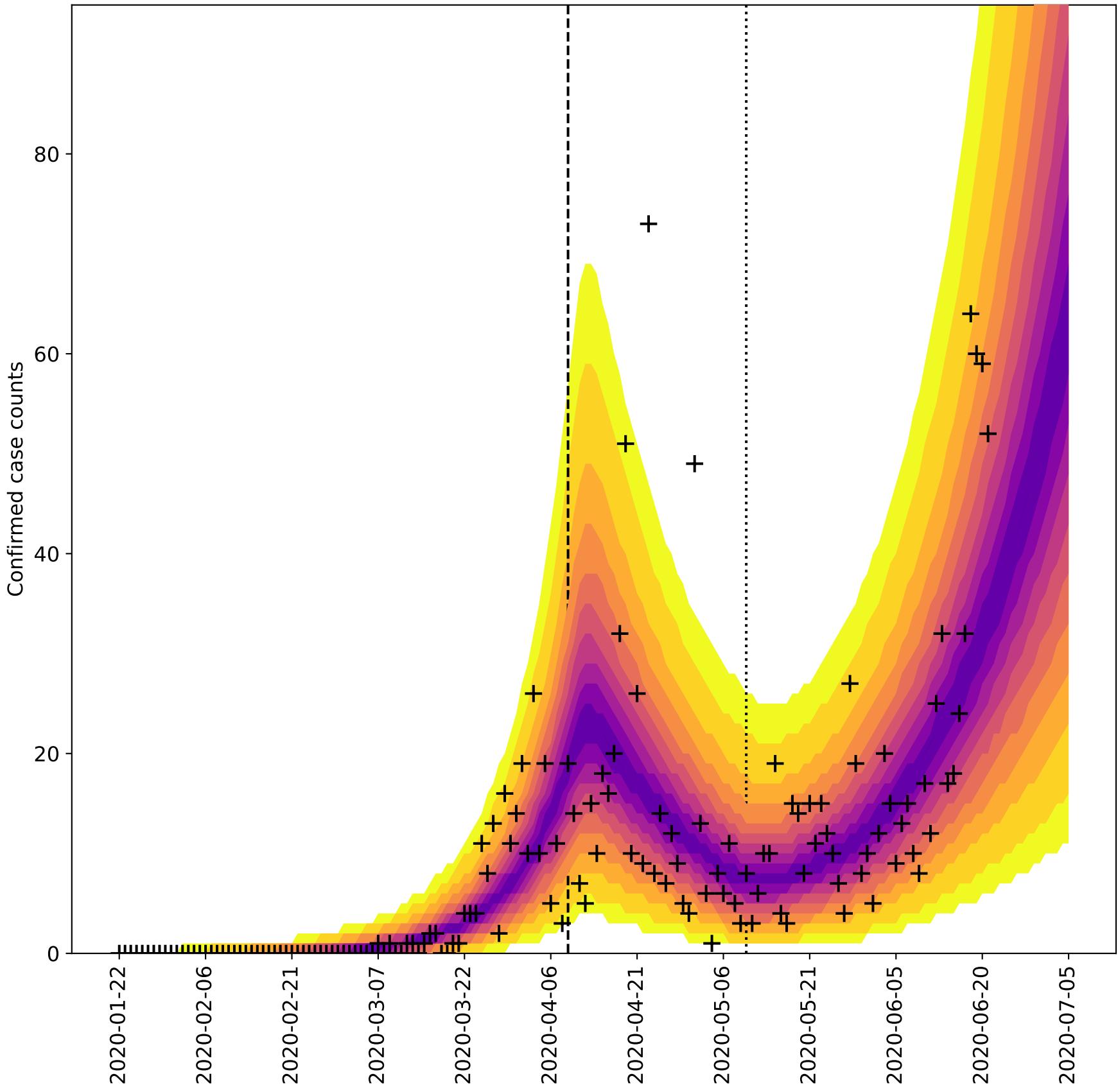
Winston-Salem, NC



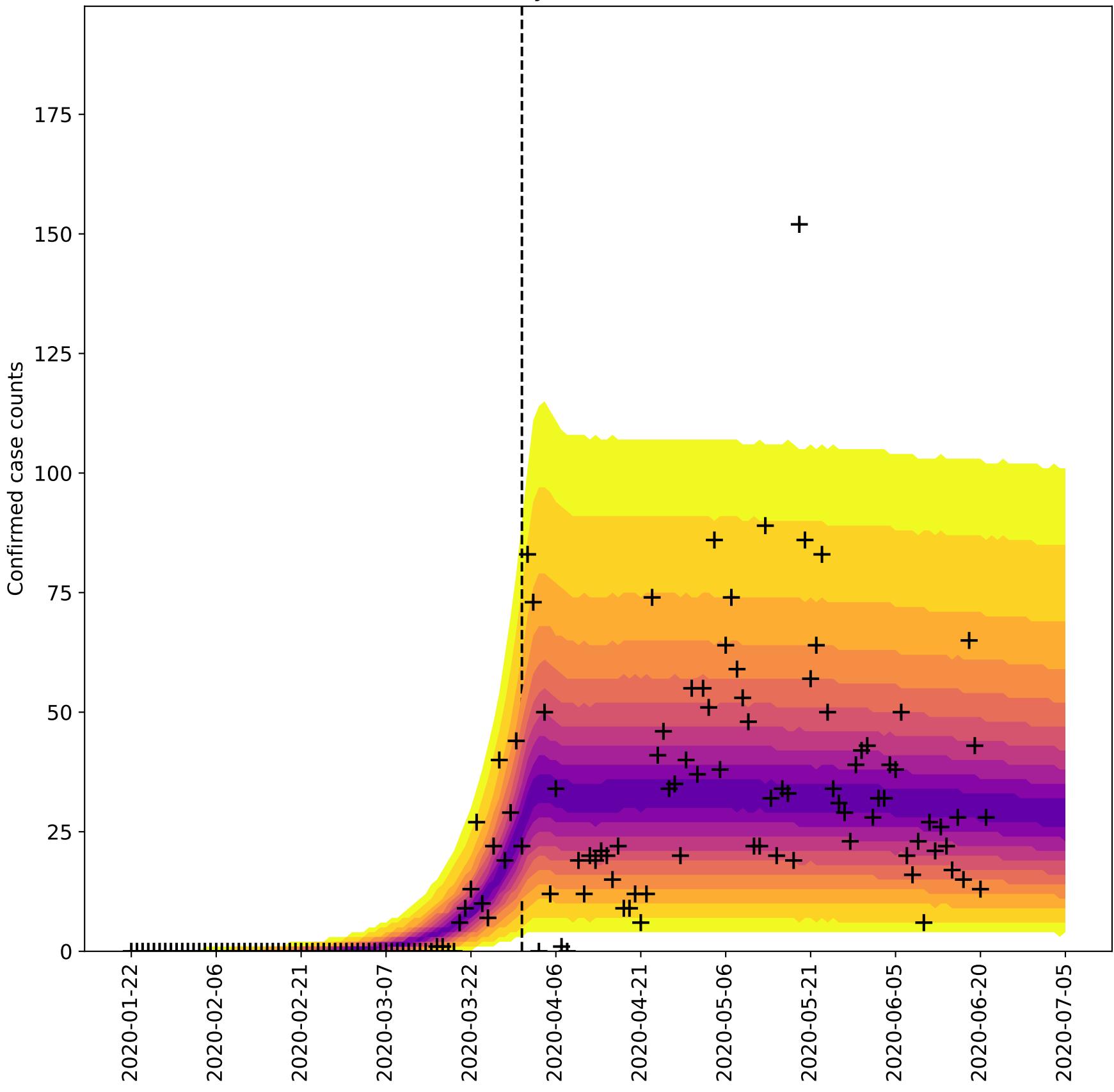
Provo-Orem, UT



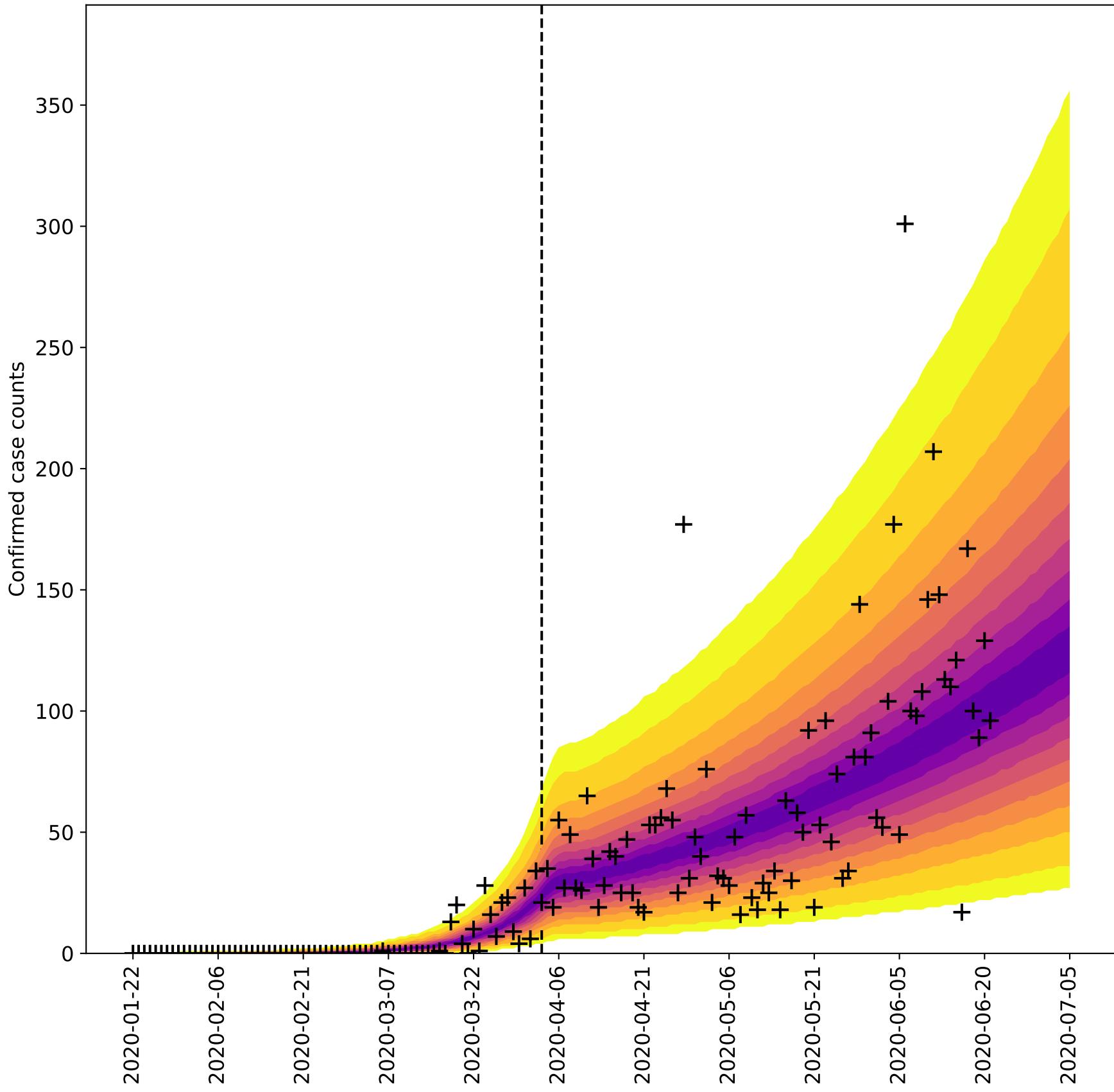
Deltona-Daytona Beach-Ormond Beach, FL



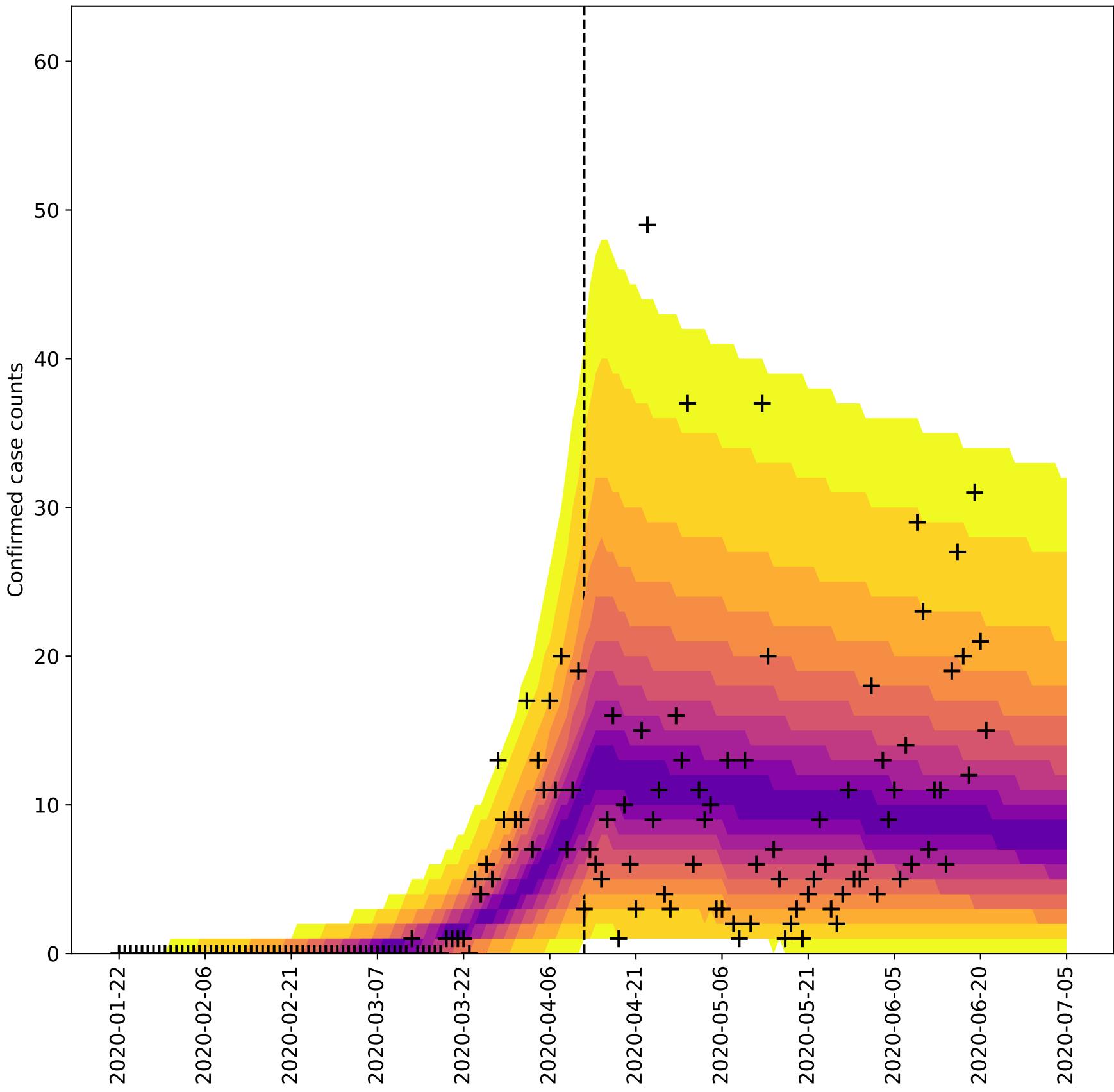
Syracuse, NY



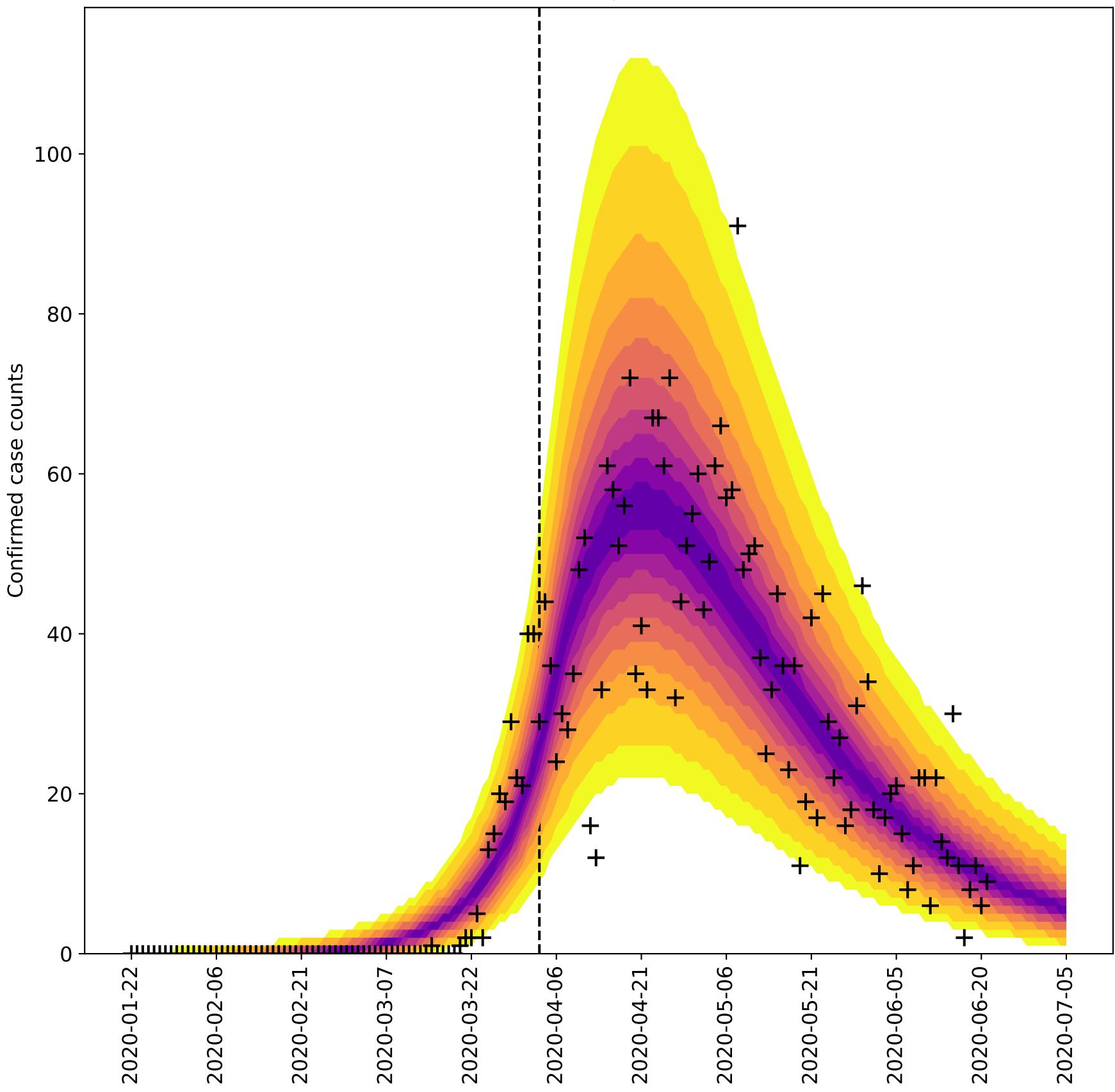
Durham-Chapel Hill, NC



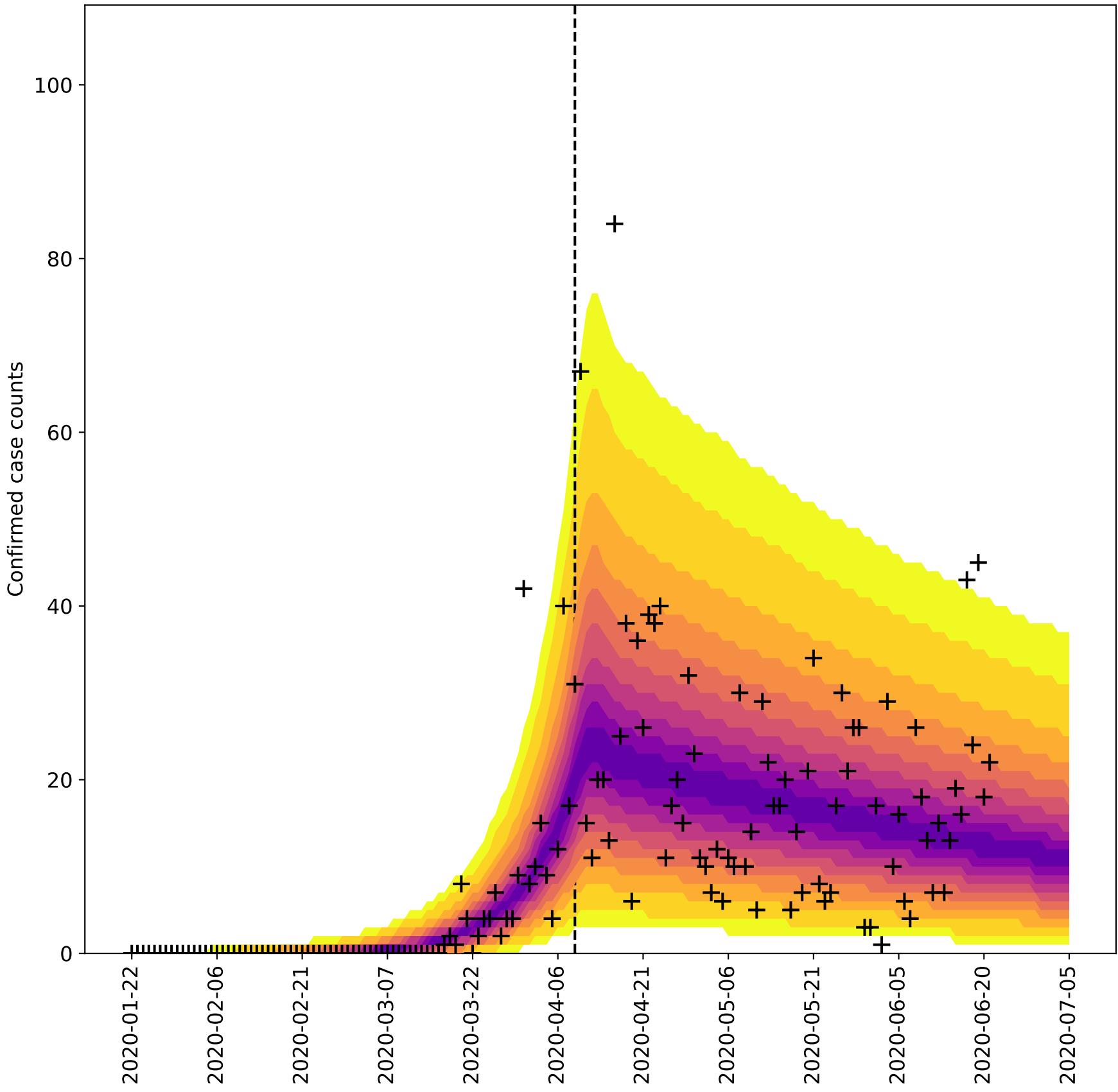
Wichita, KS



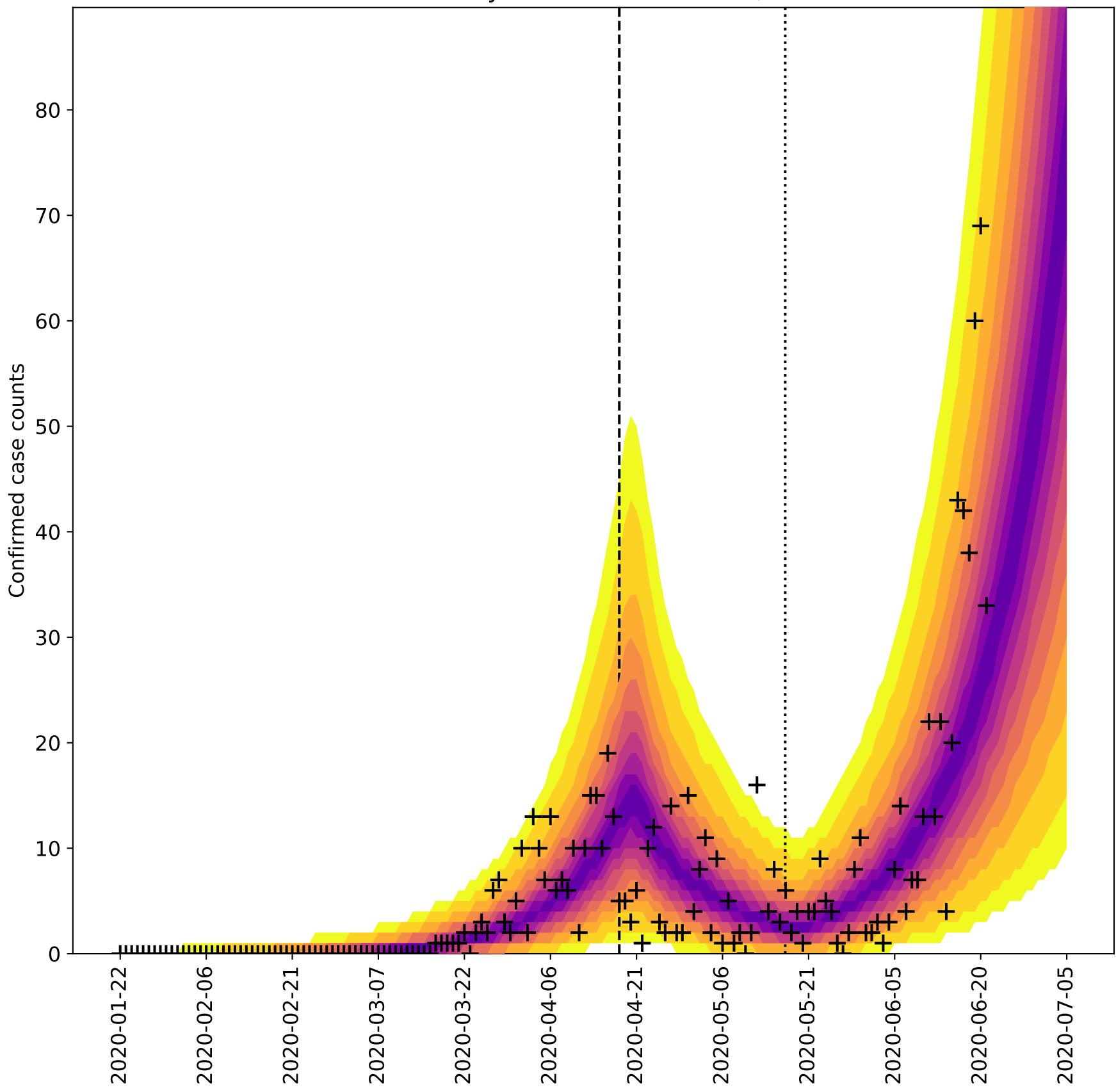
Toledo, OH



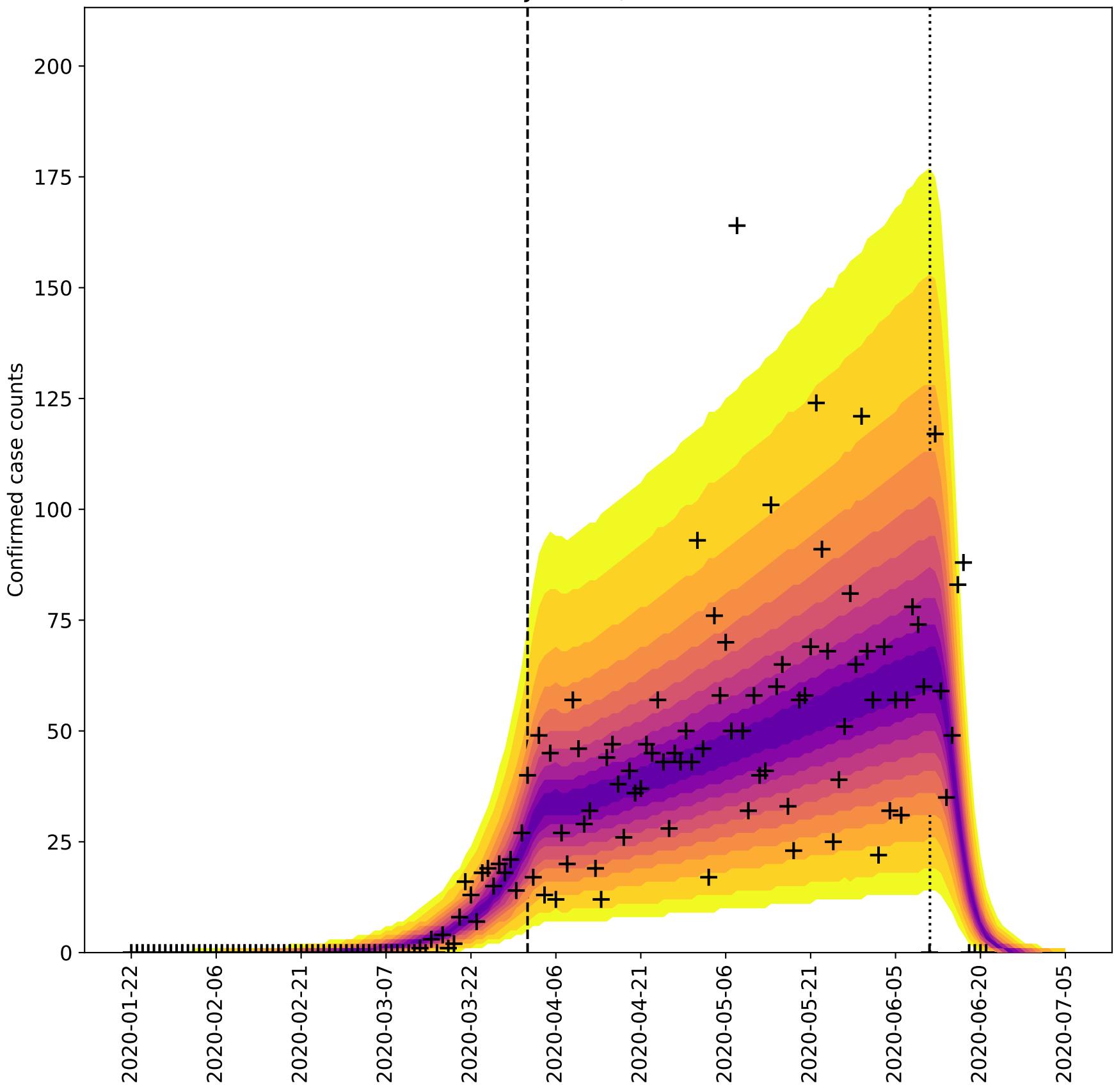
Augusta-Richmond County, GA-SC



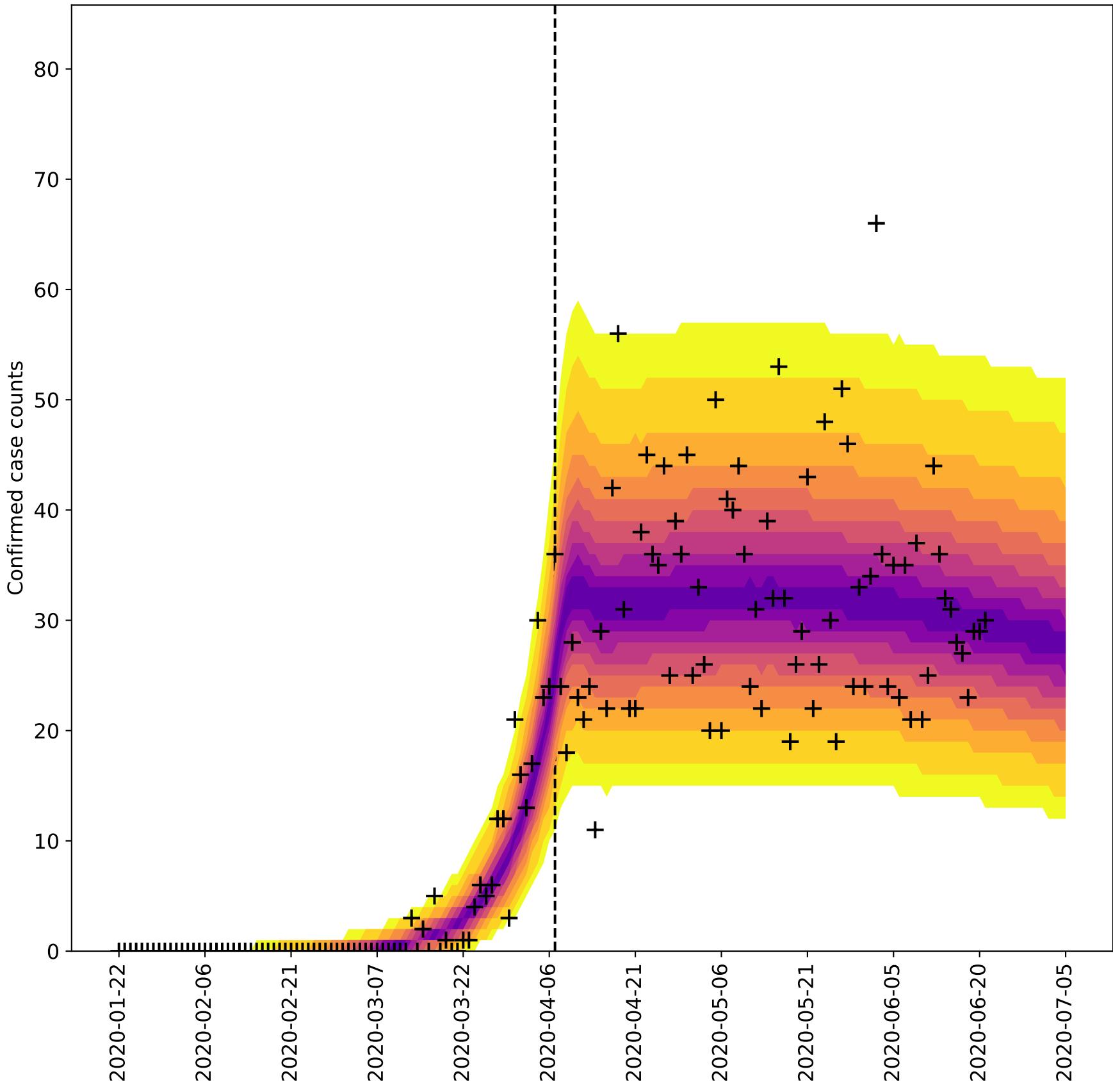
Palm Bay-Melbourne-Titusville, FL



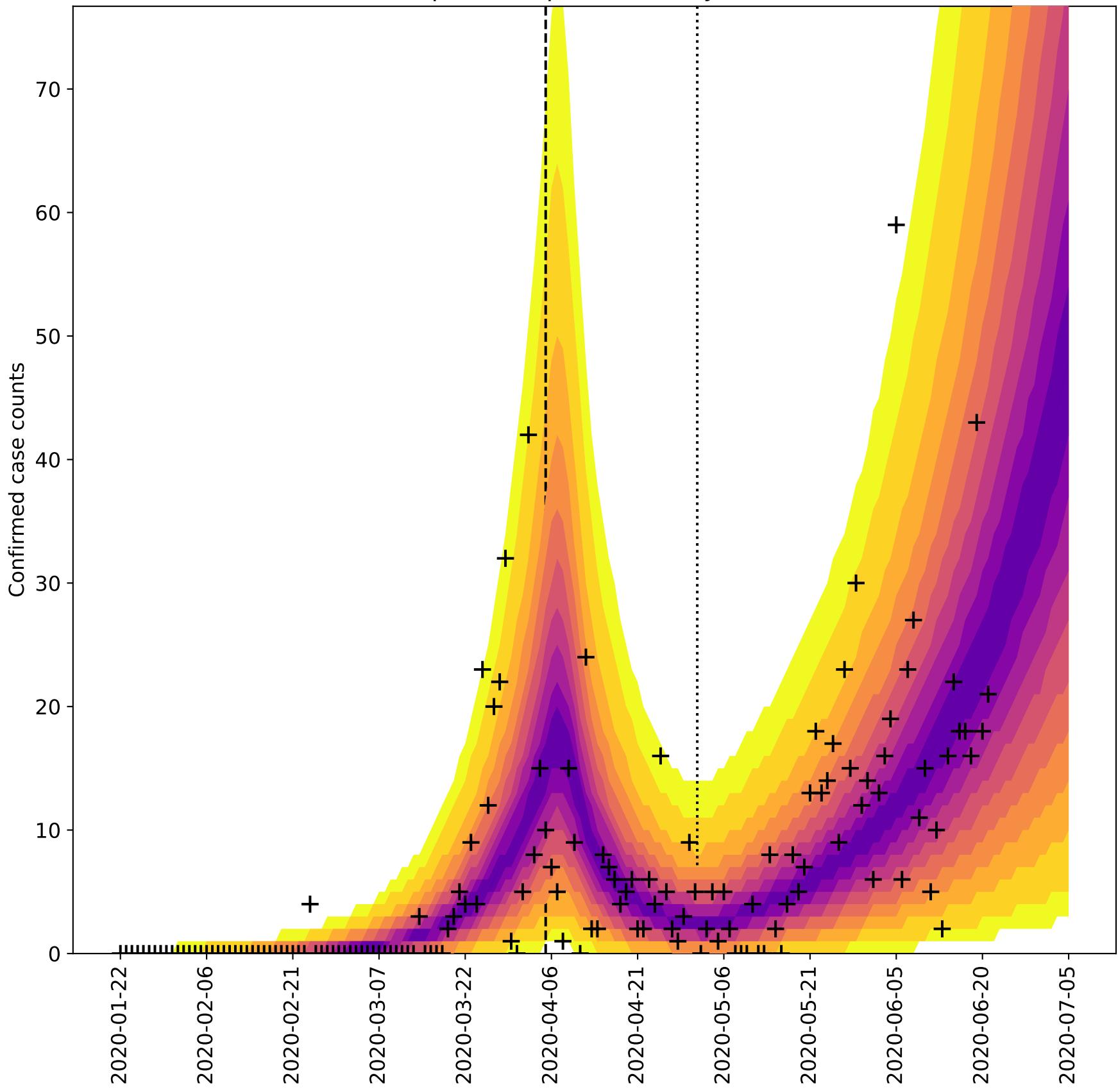
Jackson, MS



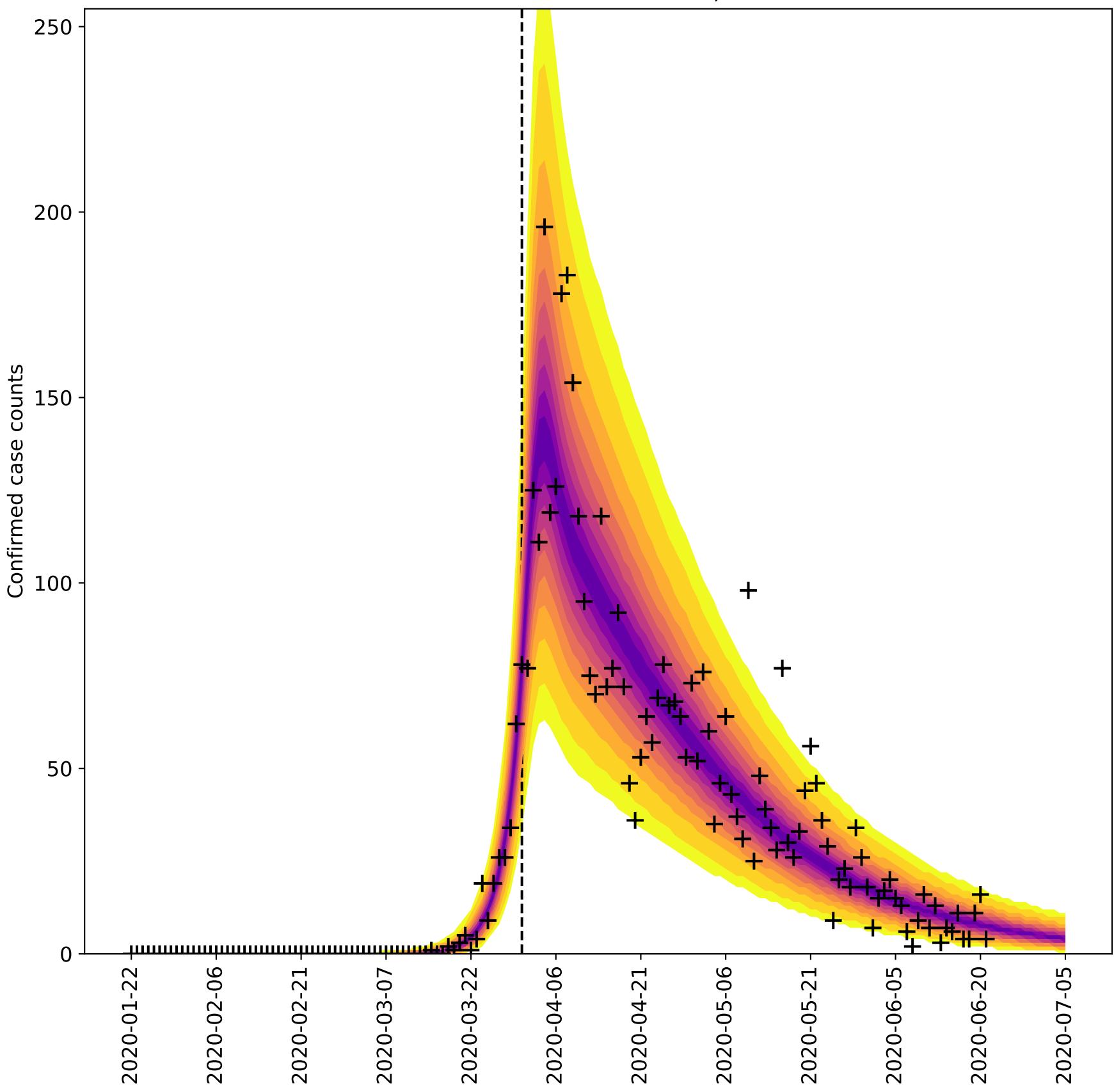
Harrisburg-Carlisle, PA



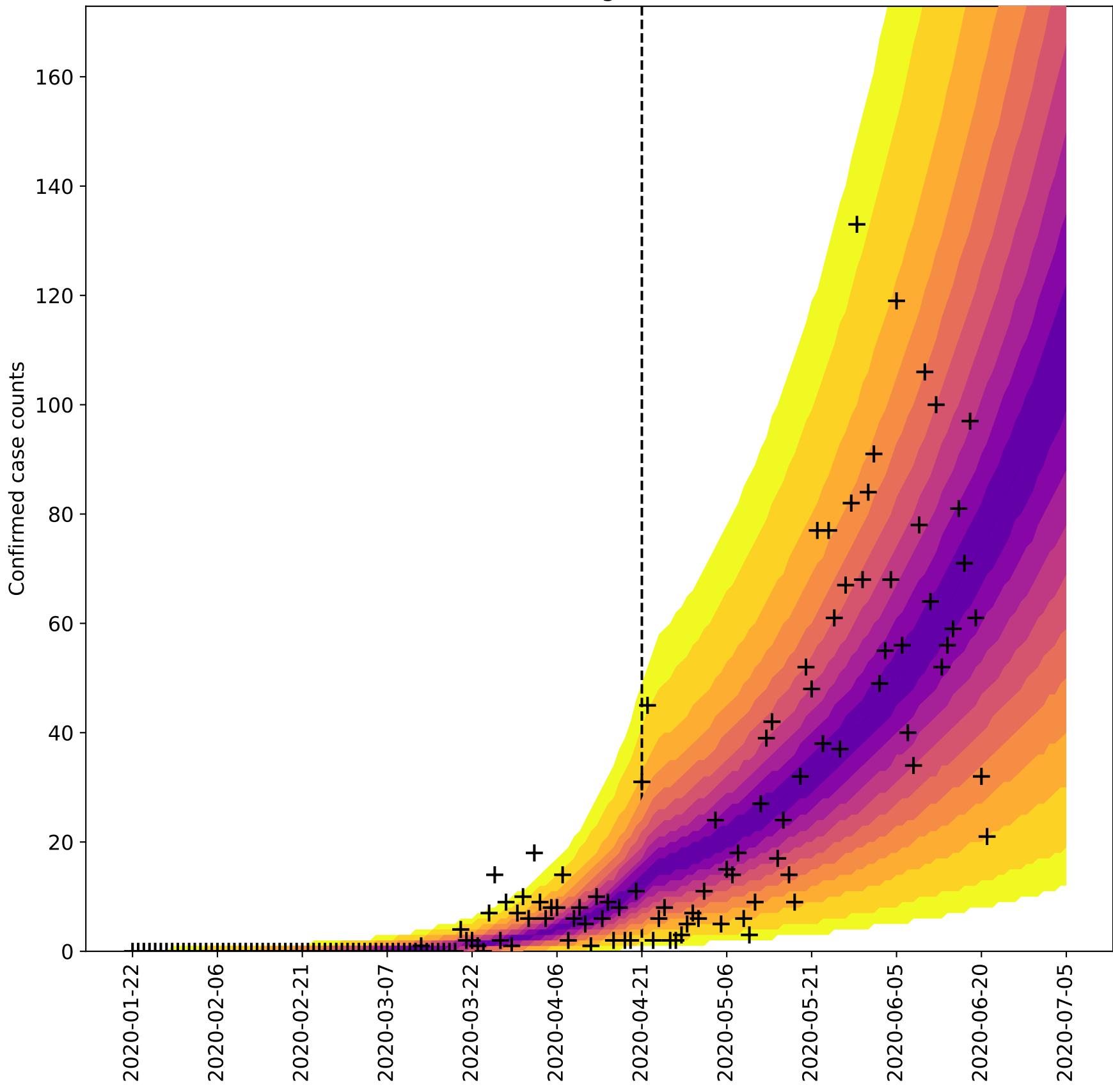
Spokane-Spokane Valley, WA



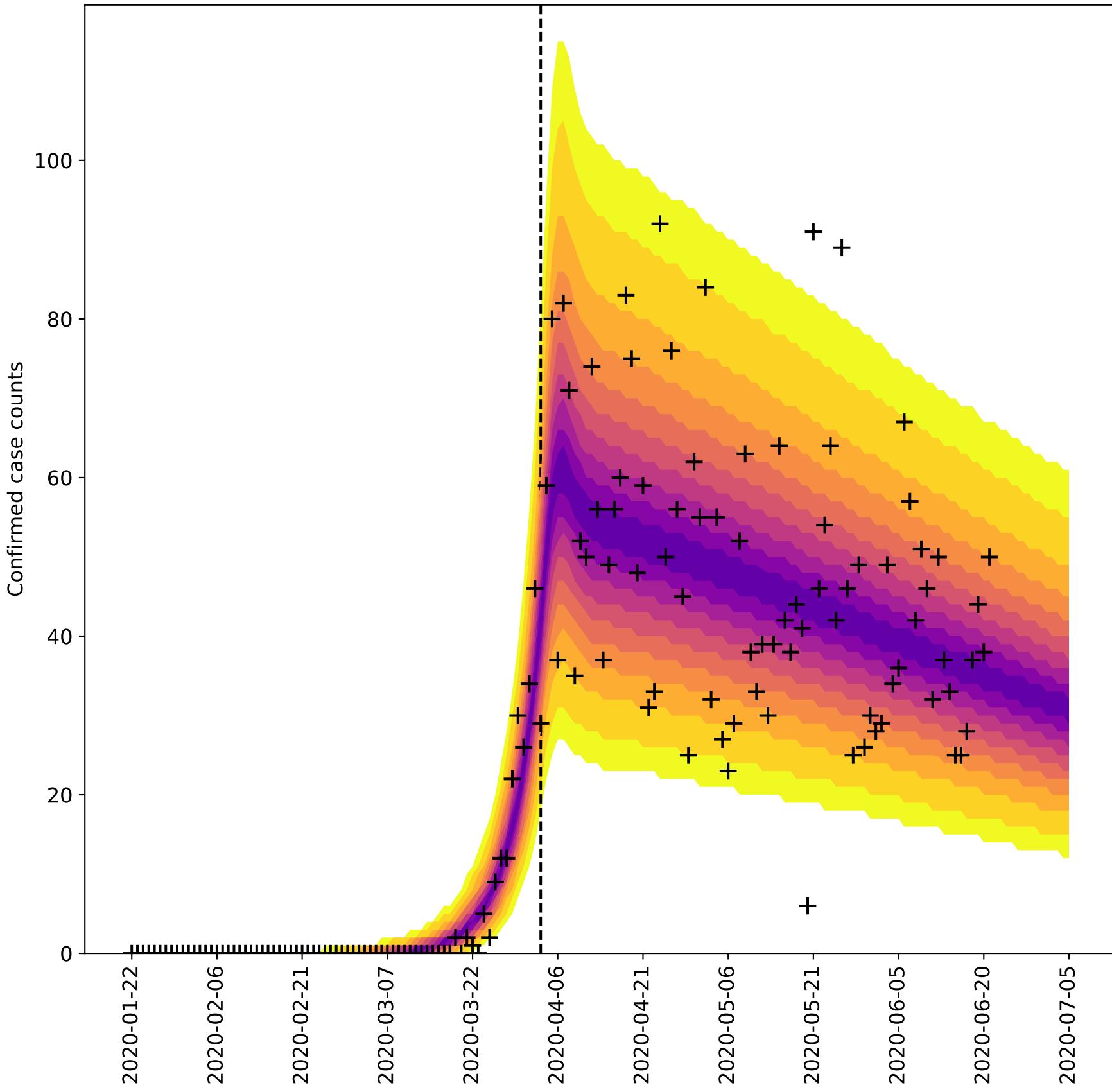
Scranton-Wilkes-Barre, PA



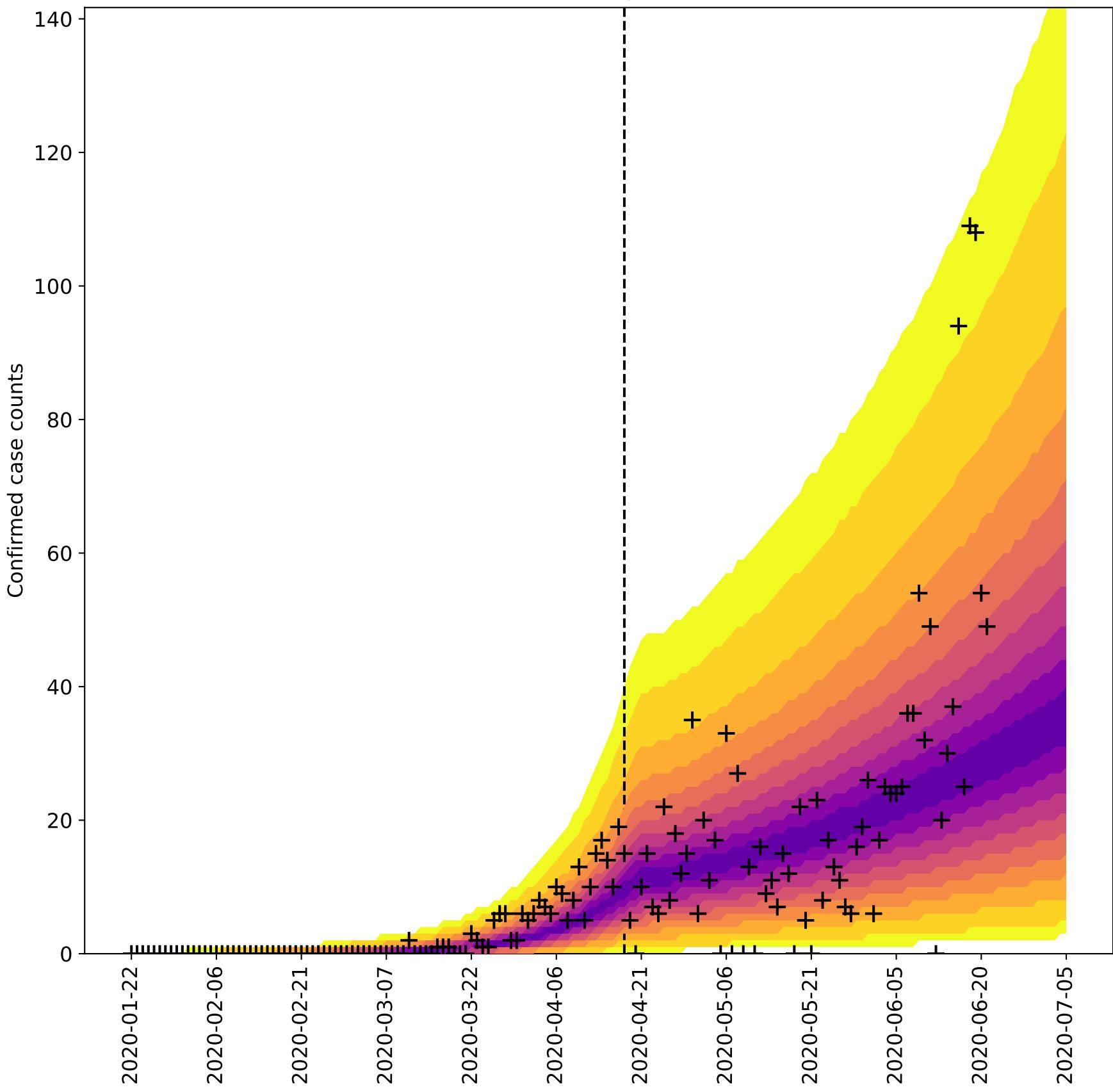
Chattanooga, TN-GA



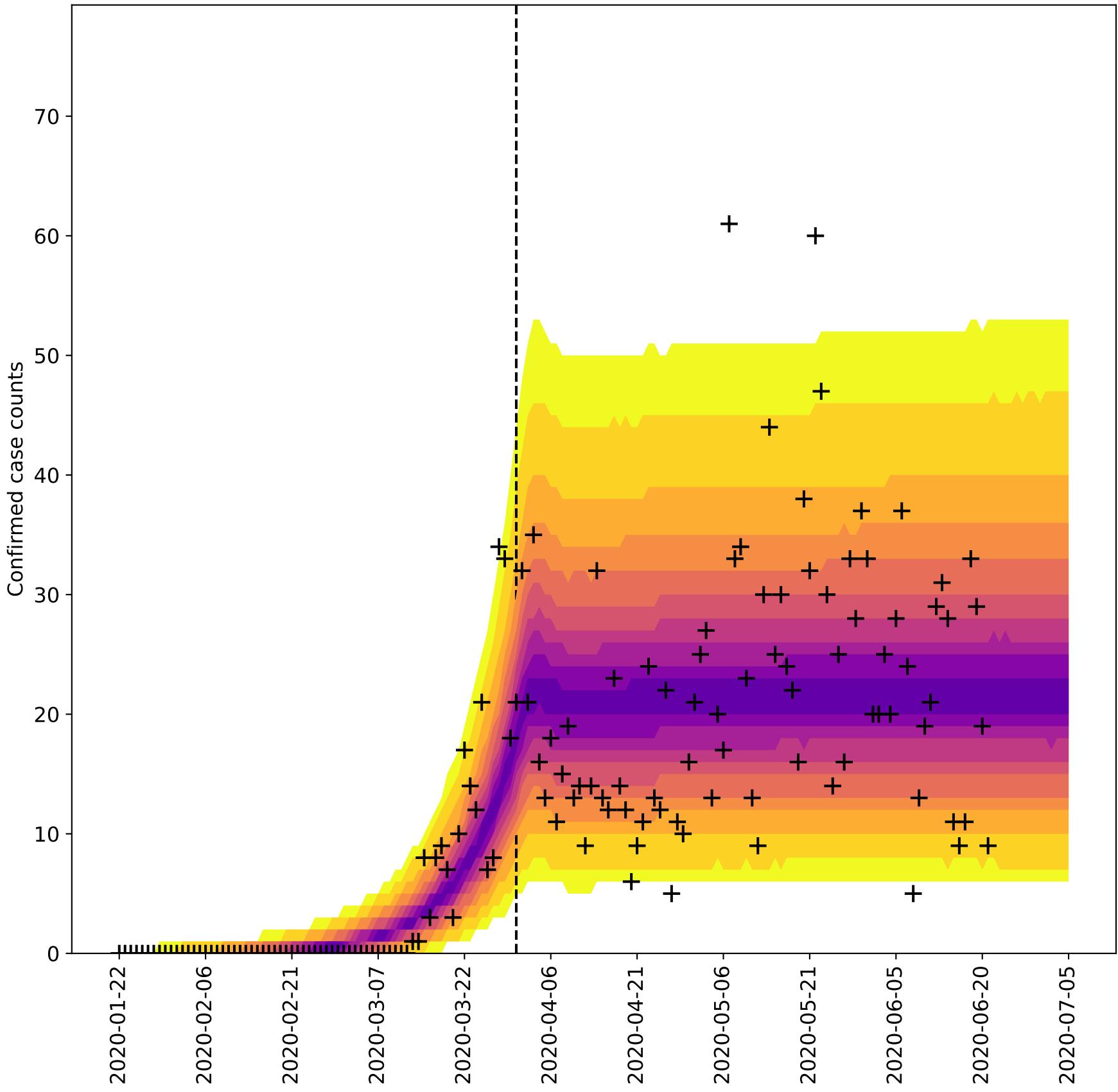
Lancaster, PA



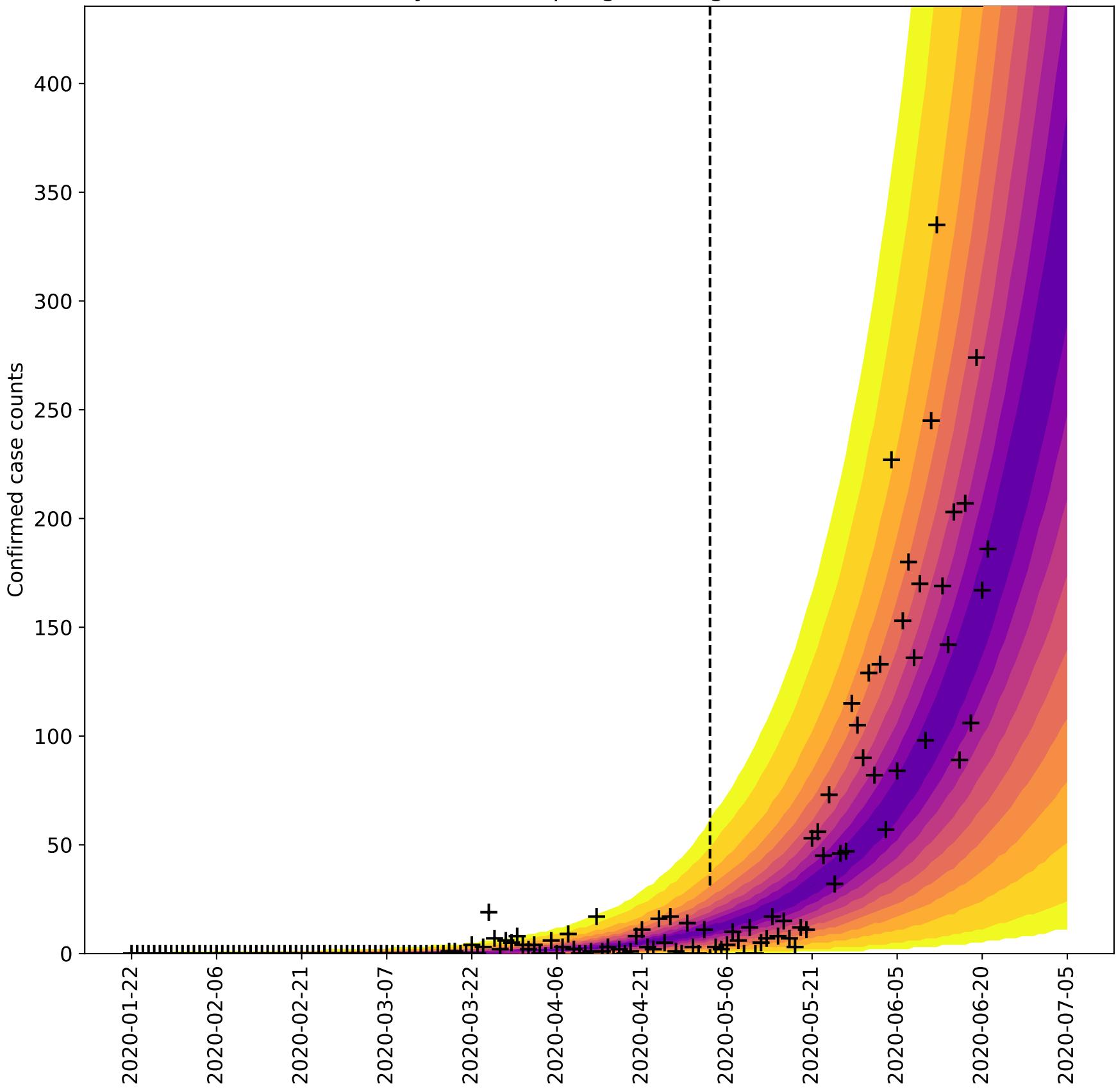
Modesto, CA



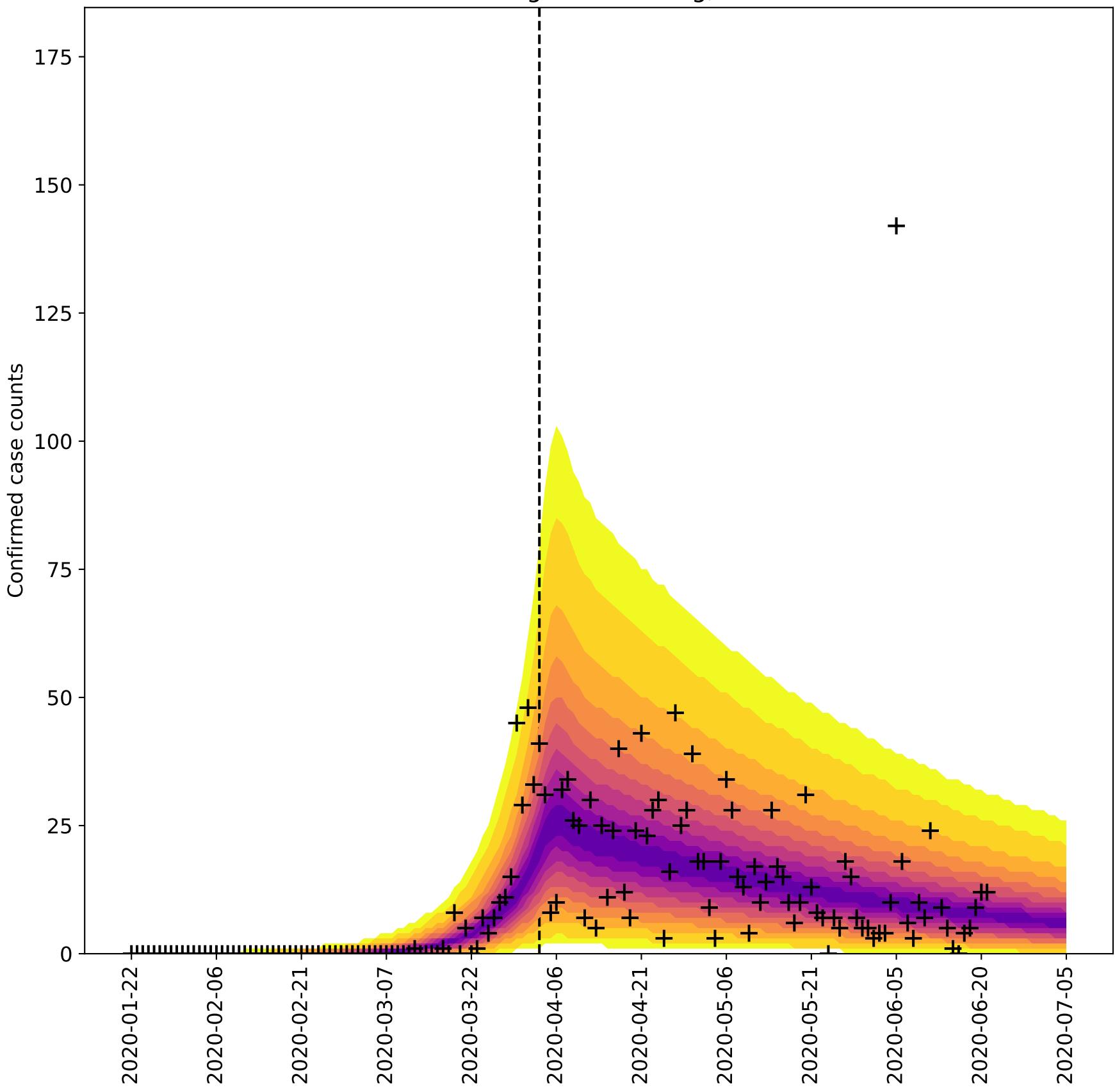
Portland-South Portland, ME



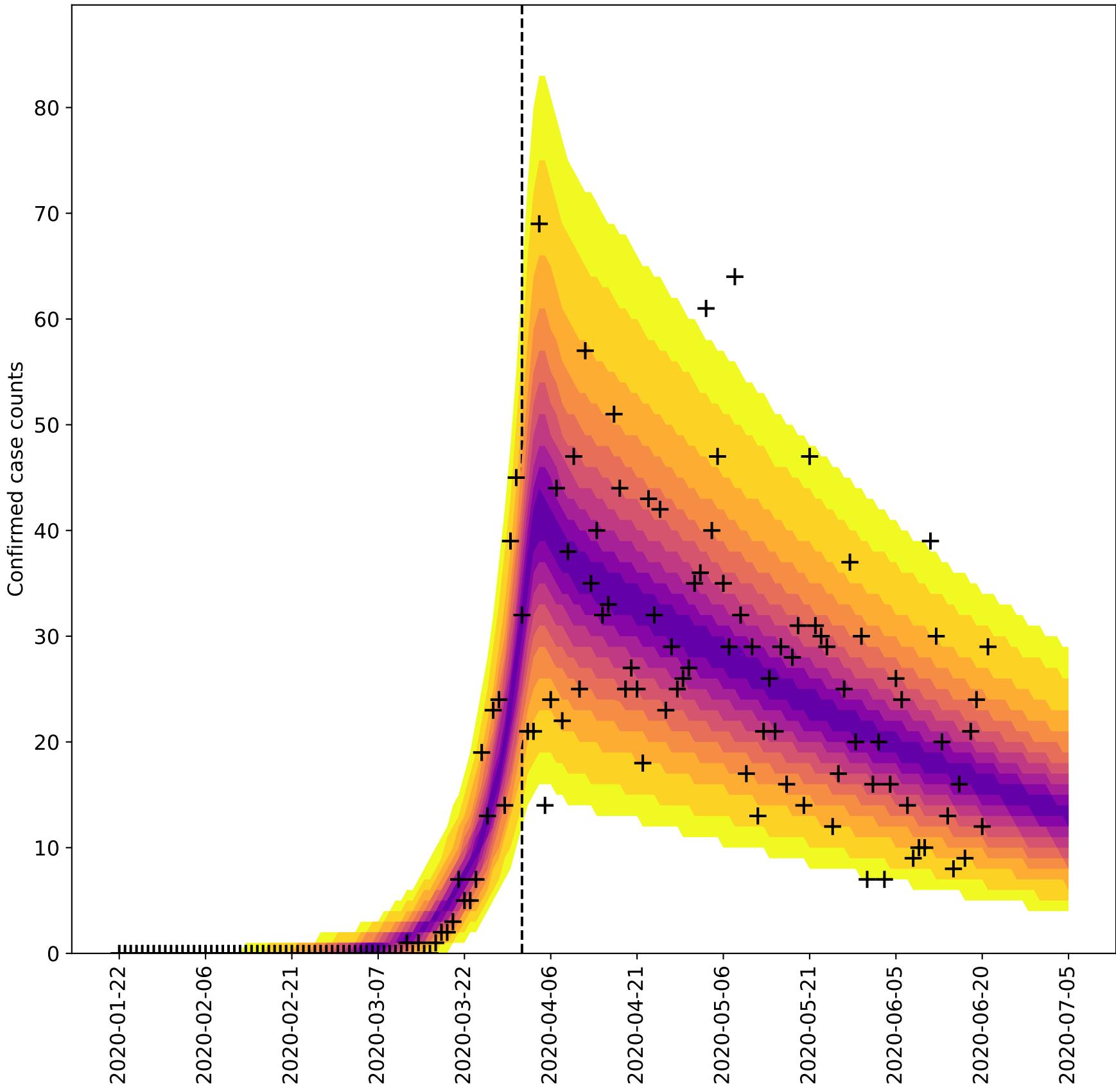
Fayetteville-Springdale-Rogers, AR



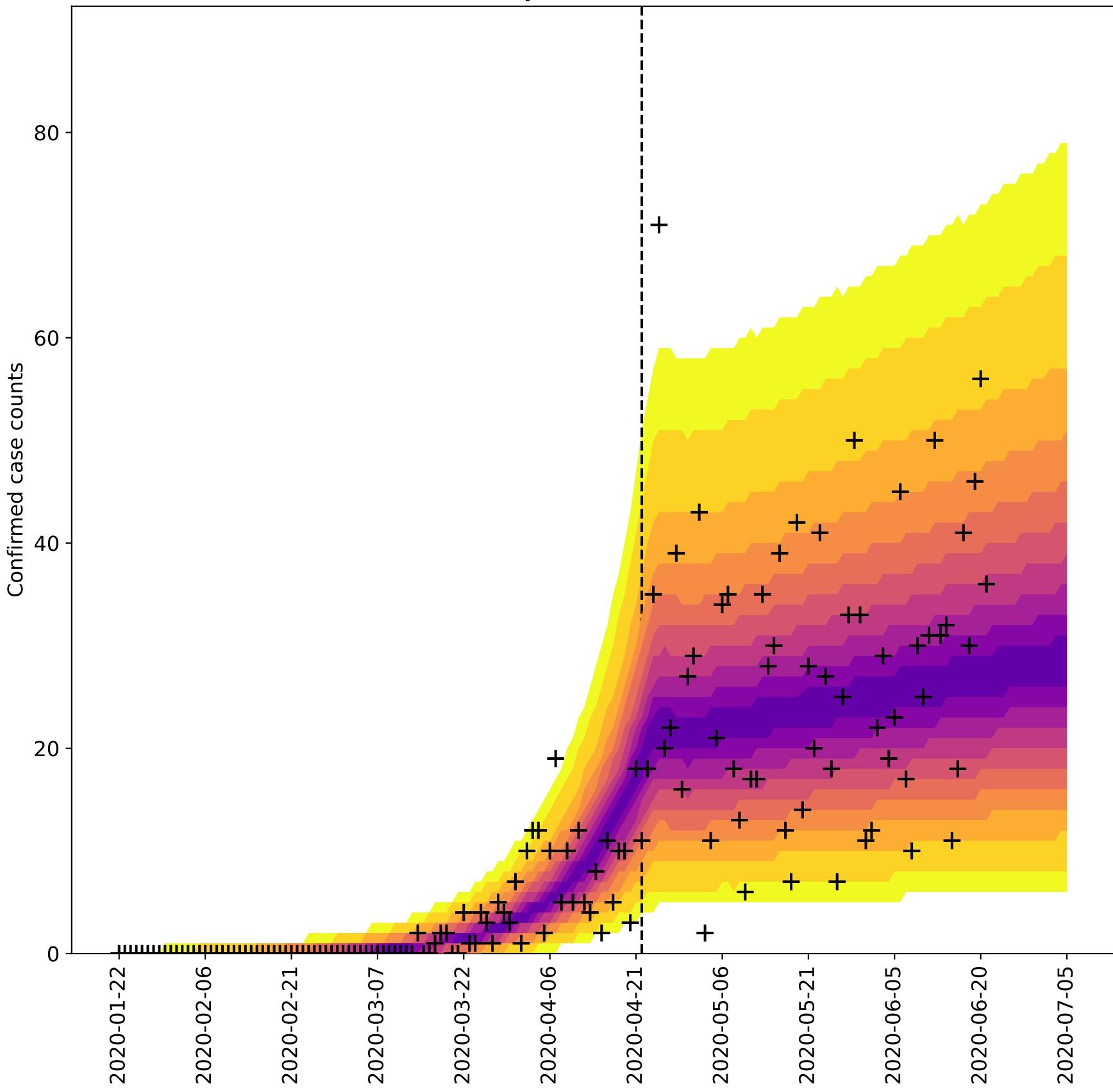
Lansing-East Lansing, MI



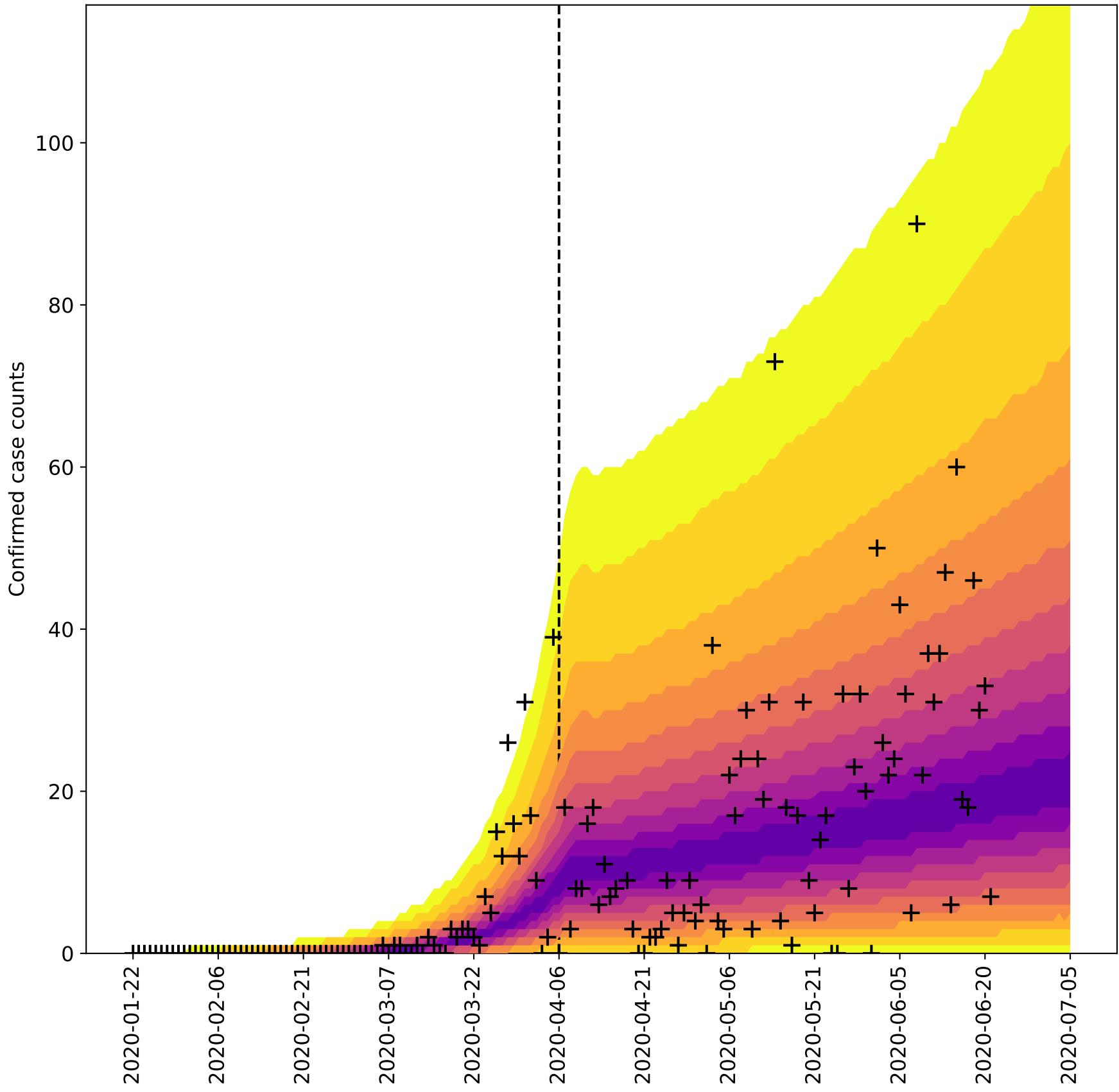
Youngstown-Warren-Boardman, OH-PA



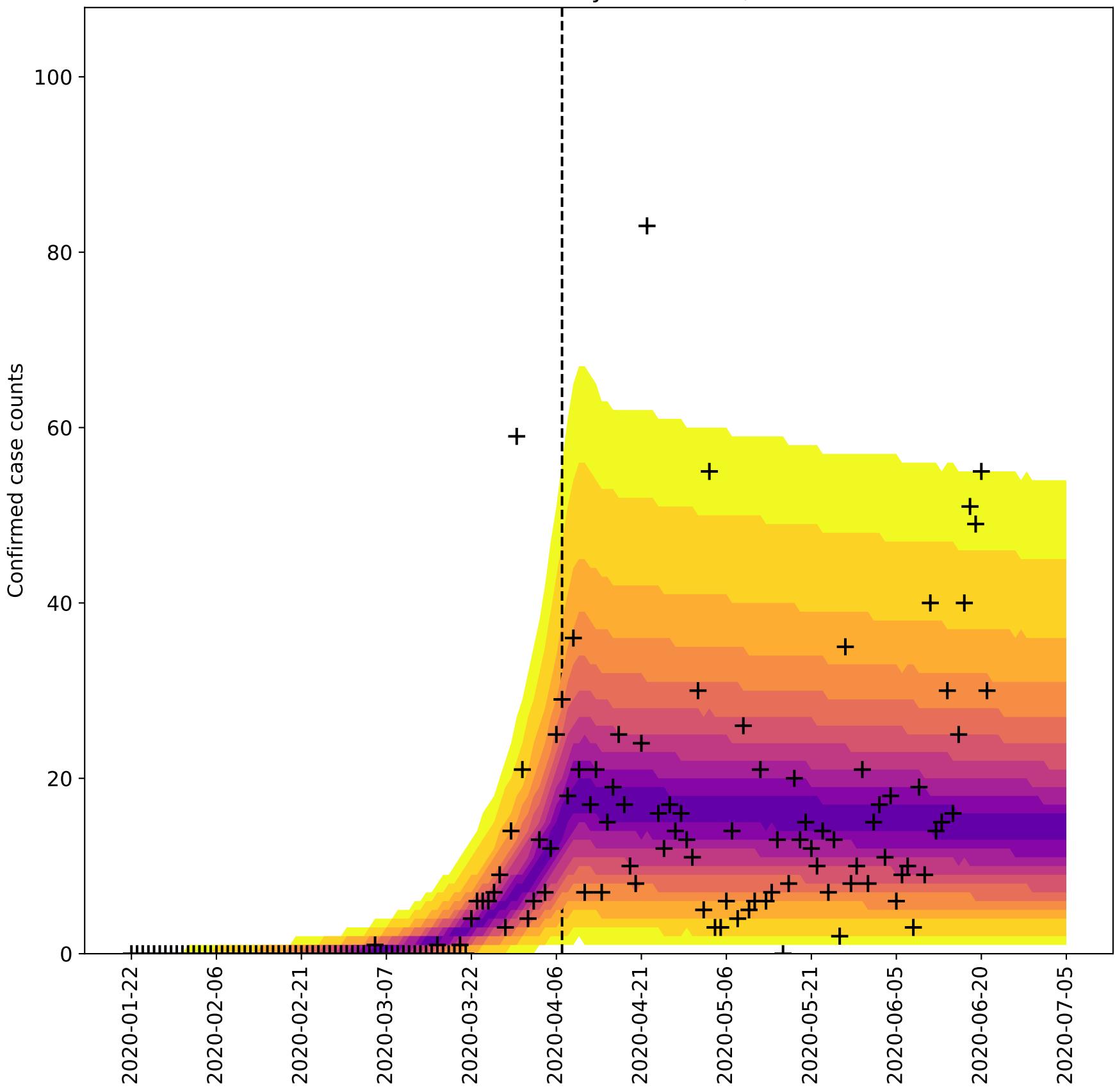
Fayetteville, NC



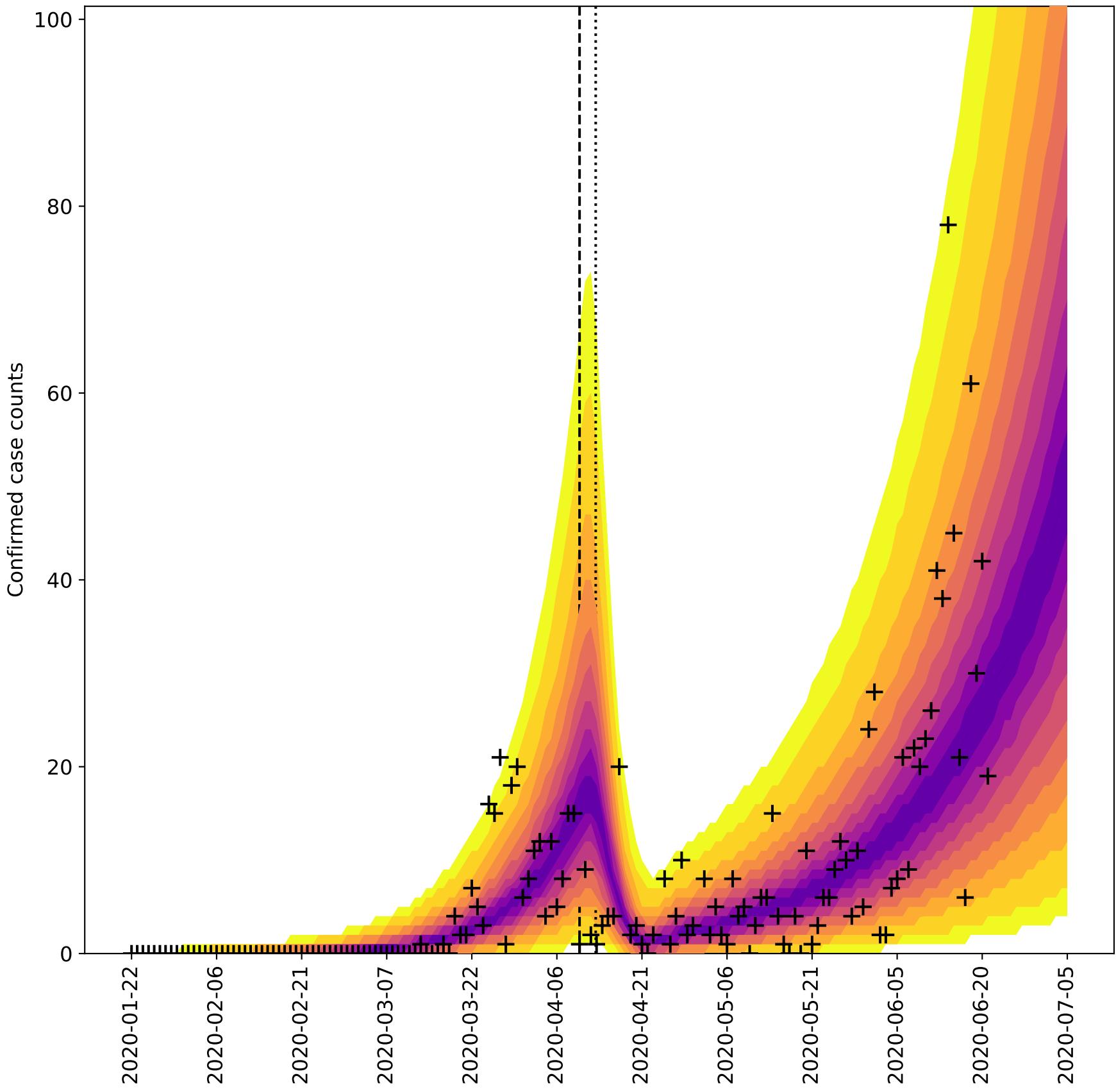
Lexington-Fayette, KY



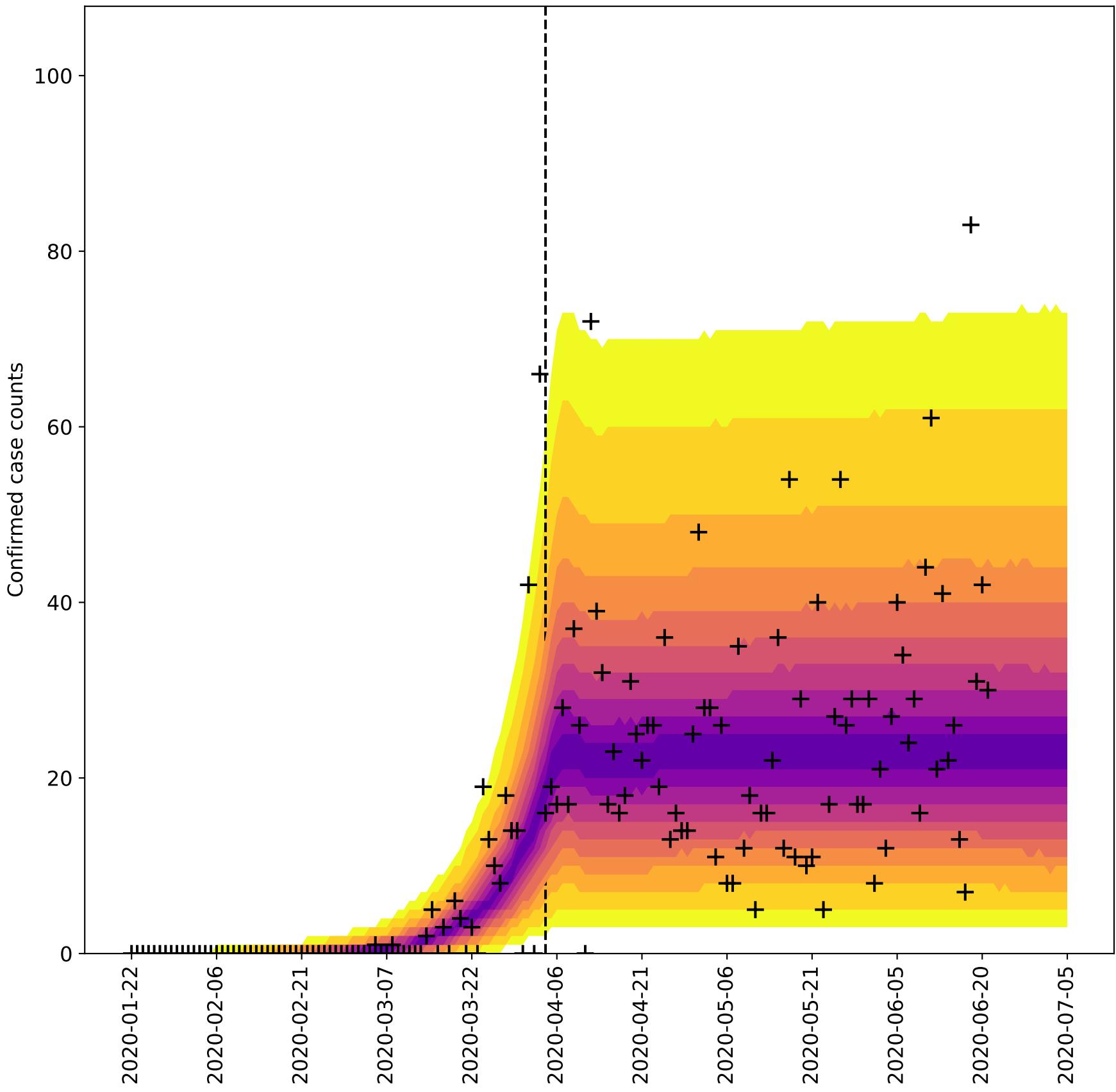
Pensacola-Ferry Pass-Brent, FL



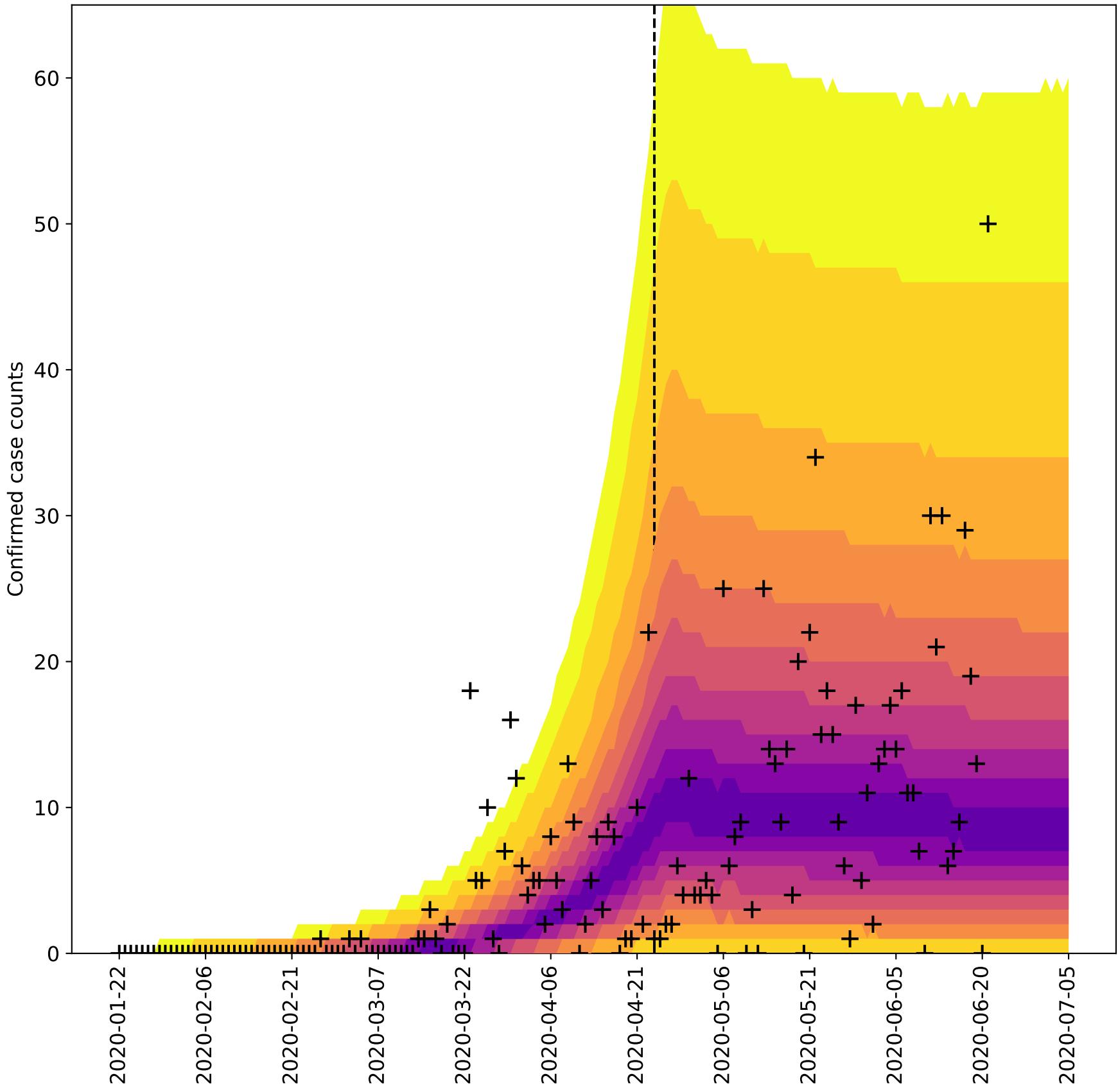
Huntsville, AL



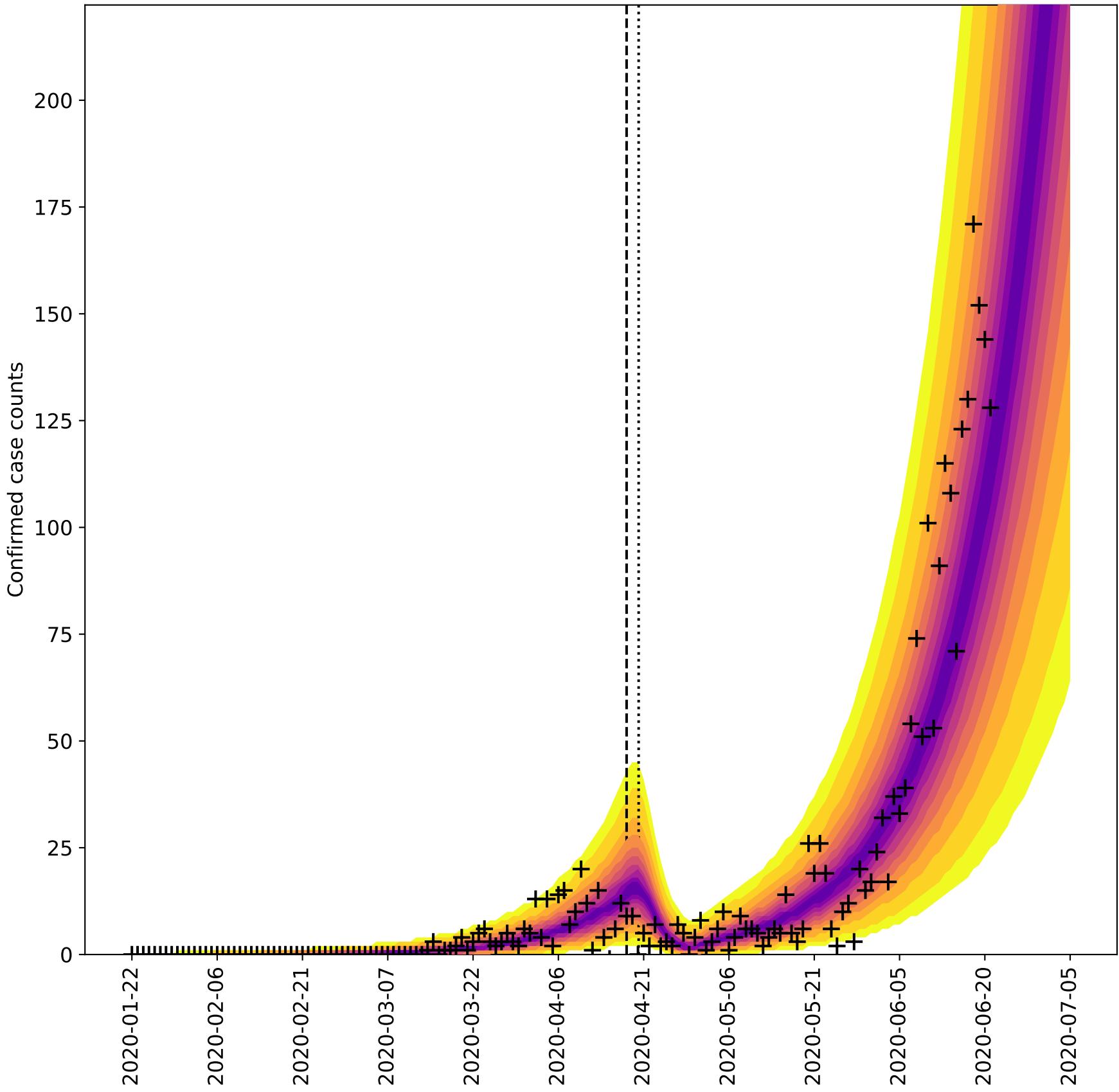
Reno, NV



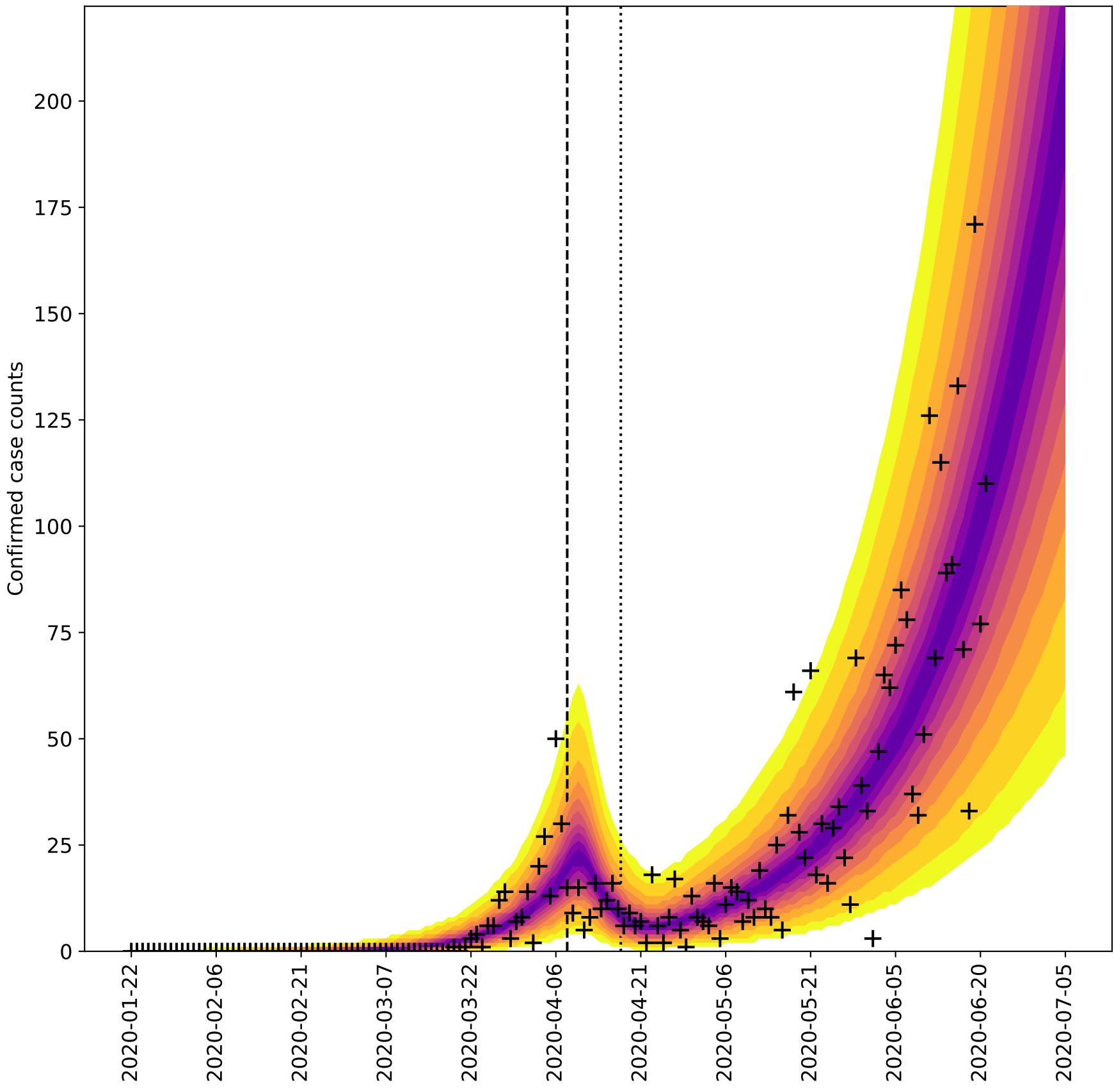
Santa Rosa-Petaluma, CA



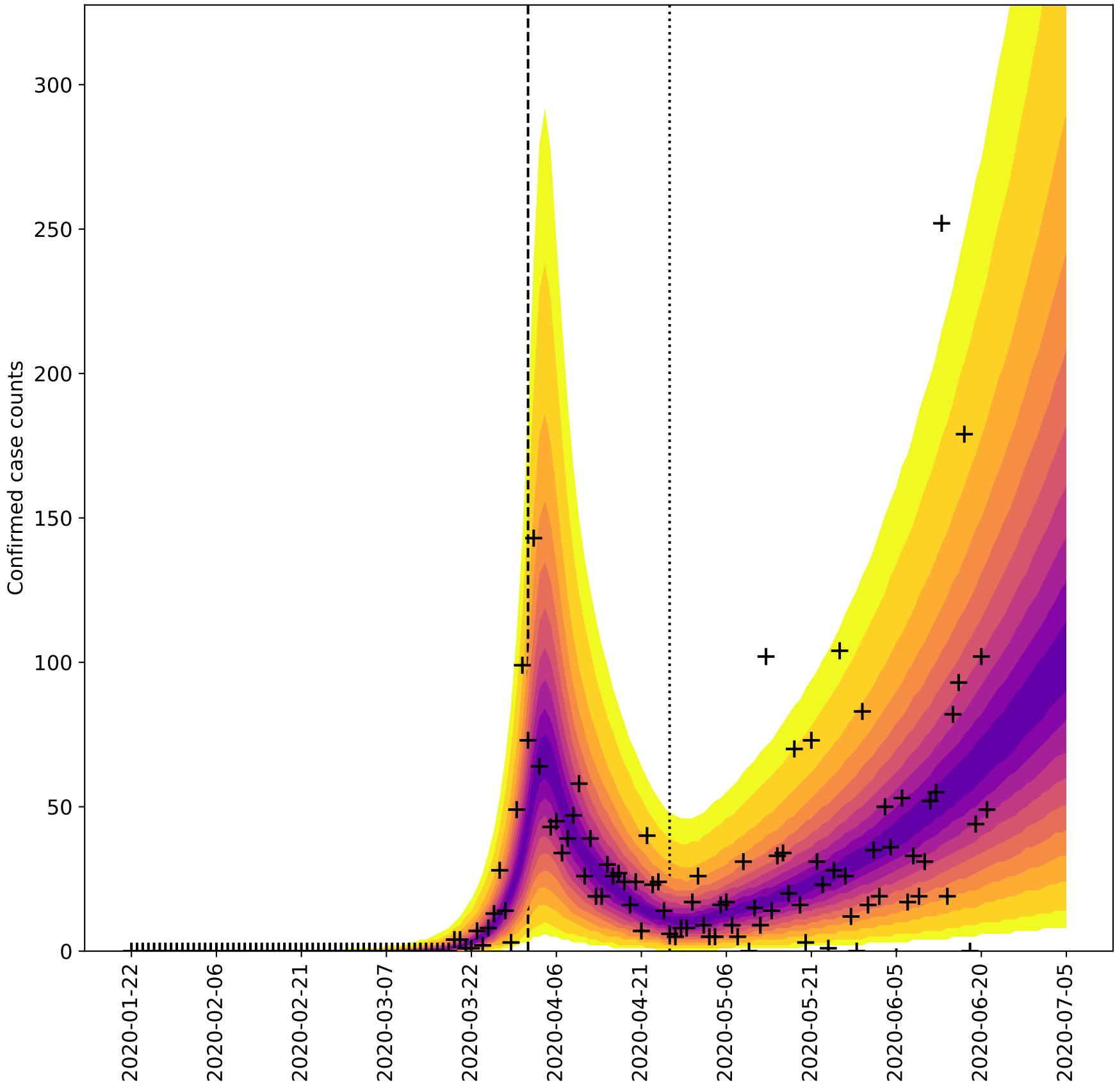
Myrtle Beach-Conway-North Myrtle Beach, SC-NC



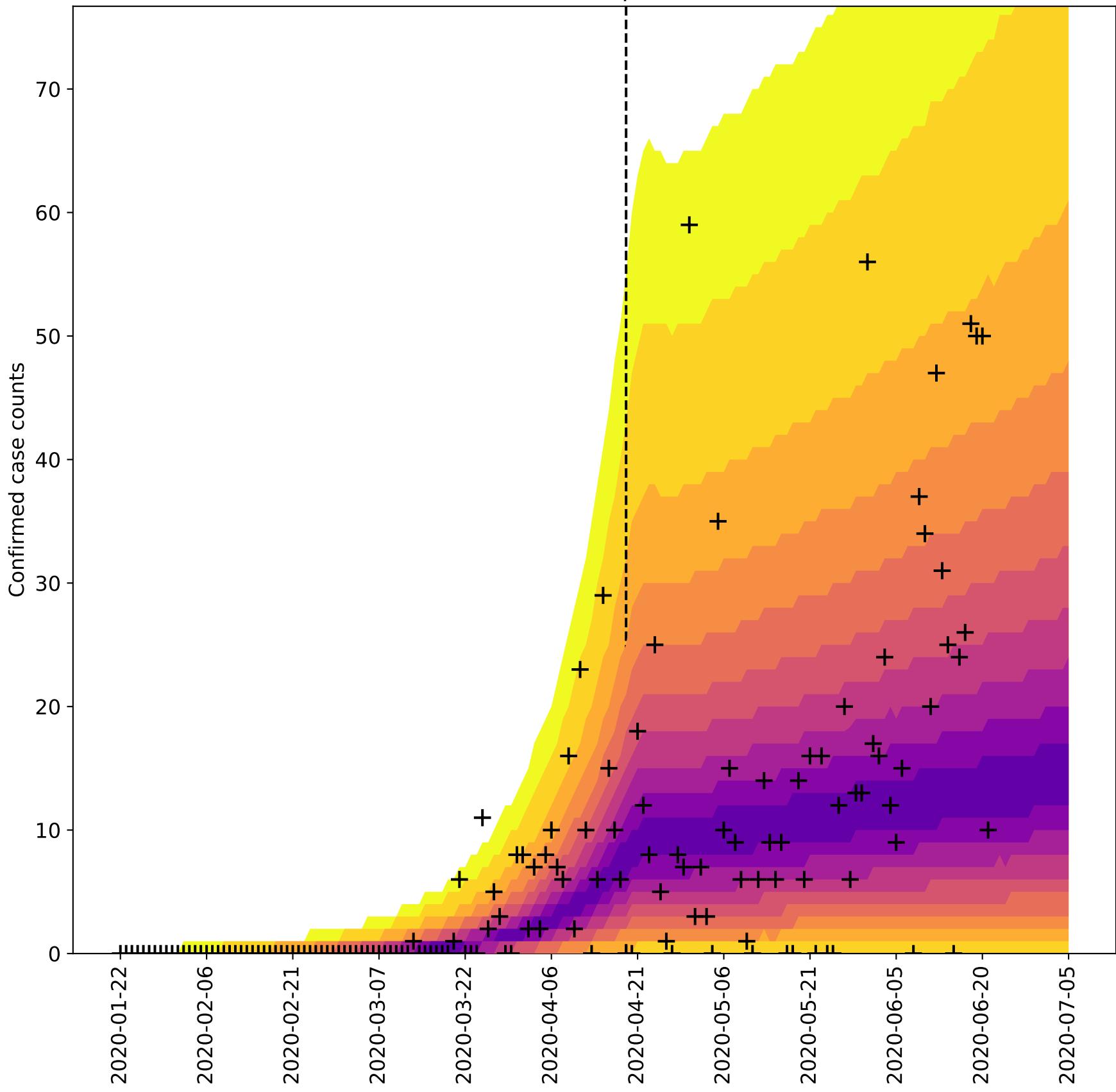
Port St. Lucie, FL



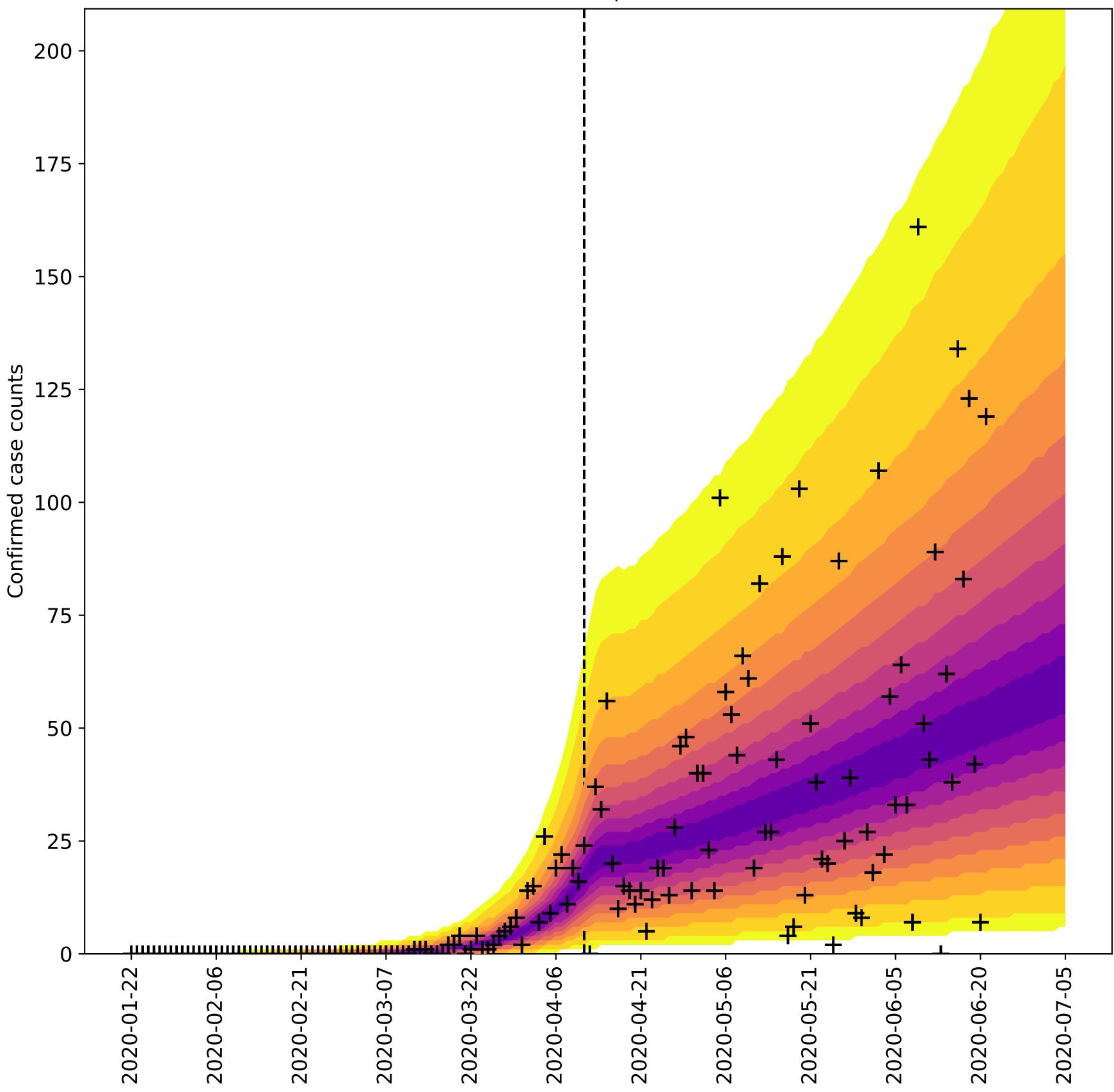
Lafayette, LA



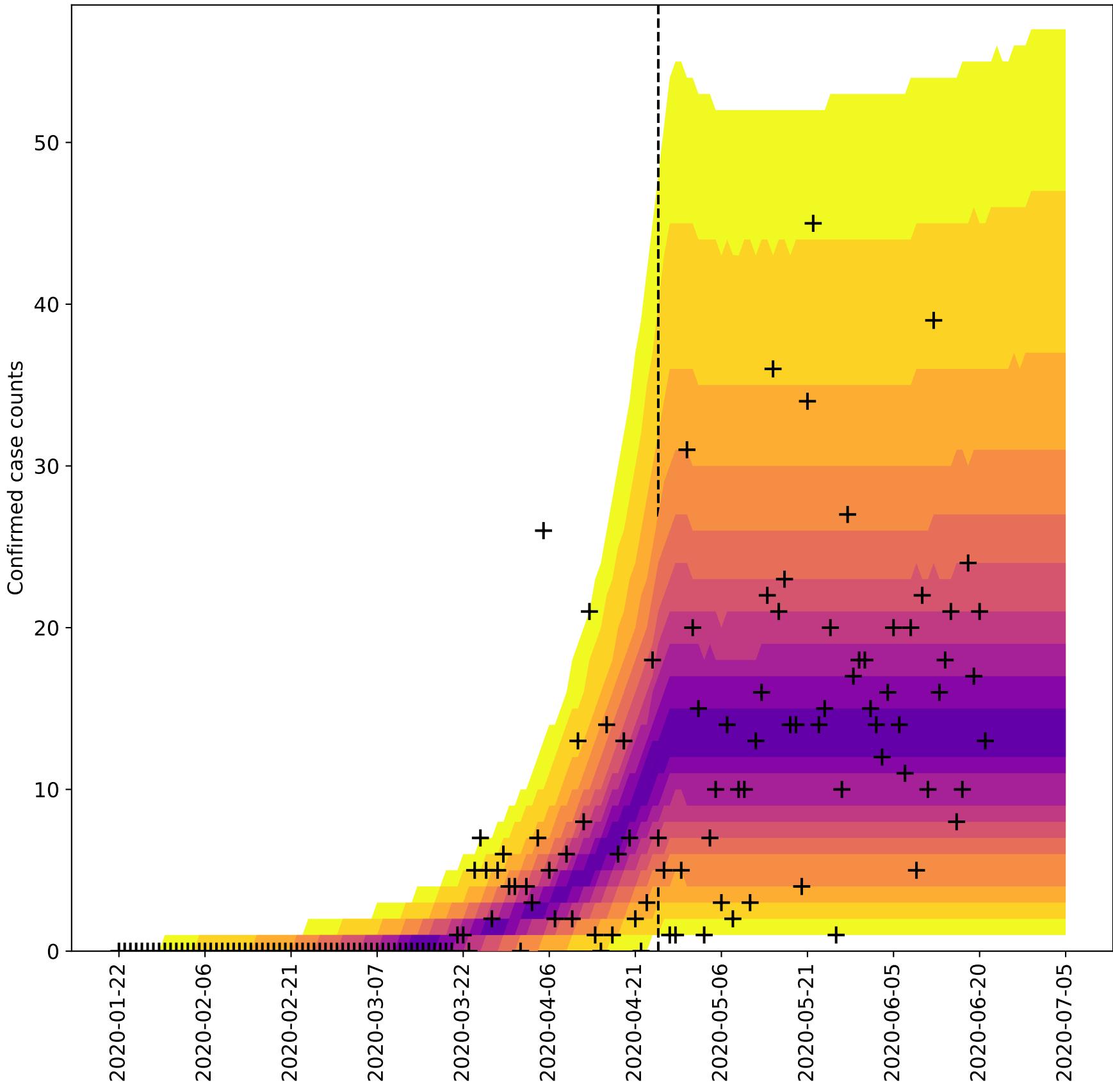
Killeen-Temple, TX



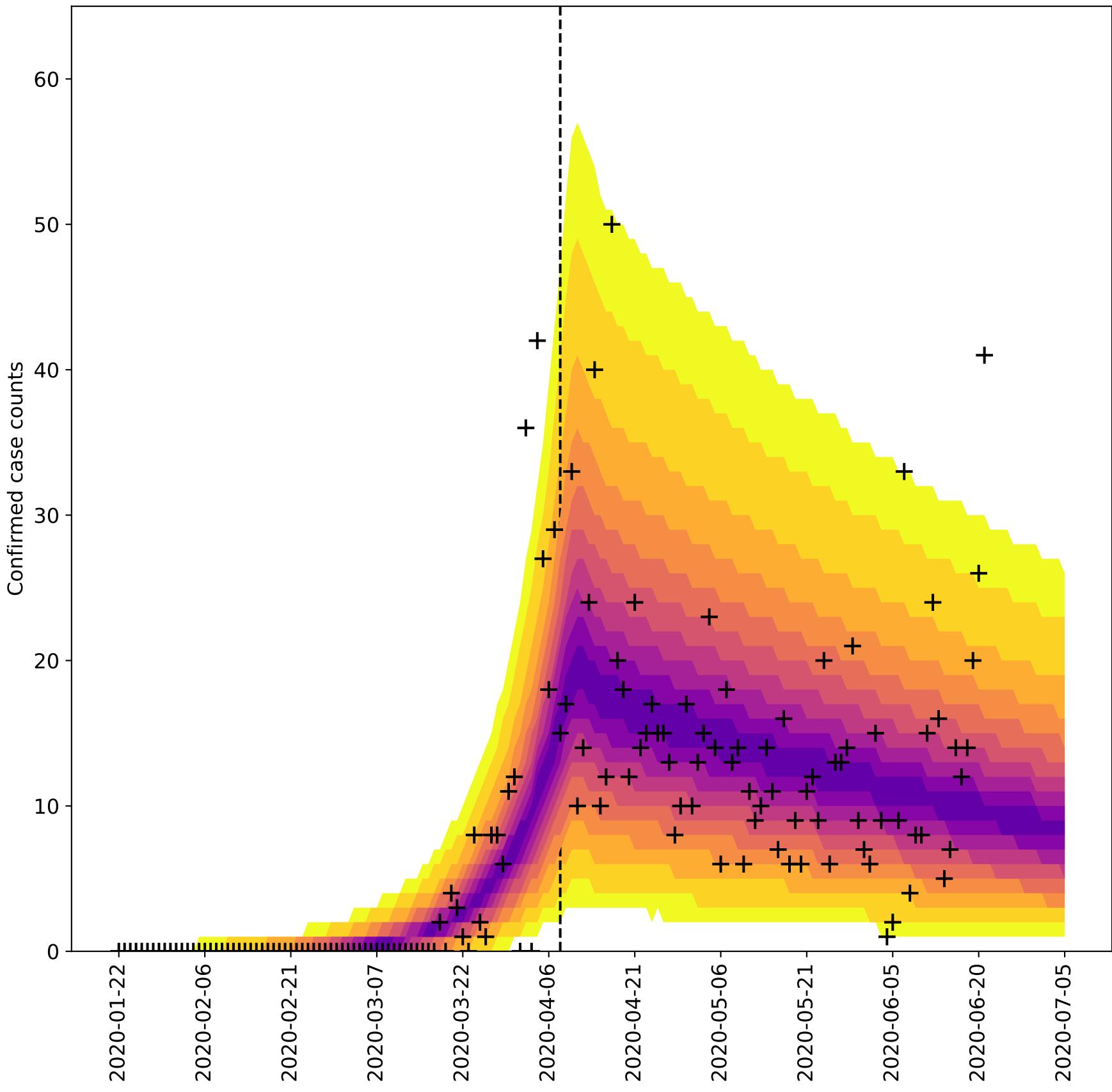
Visalia, CA



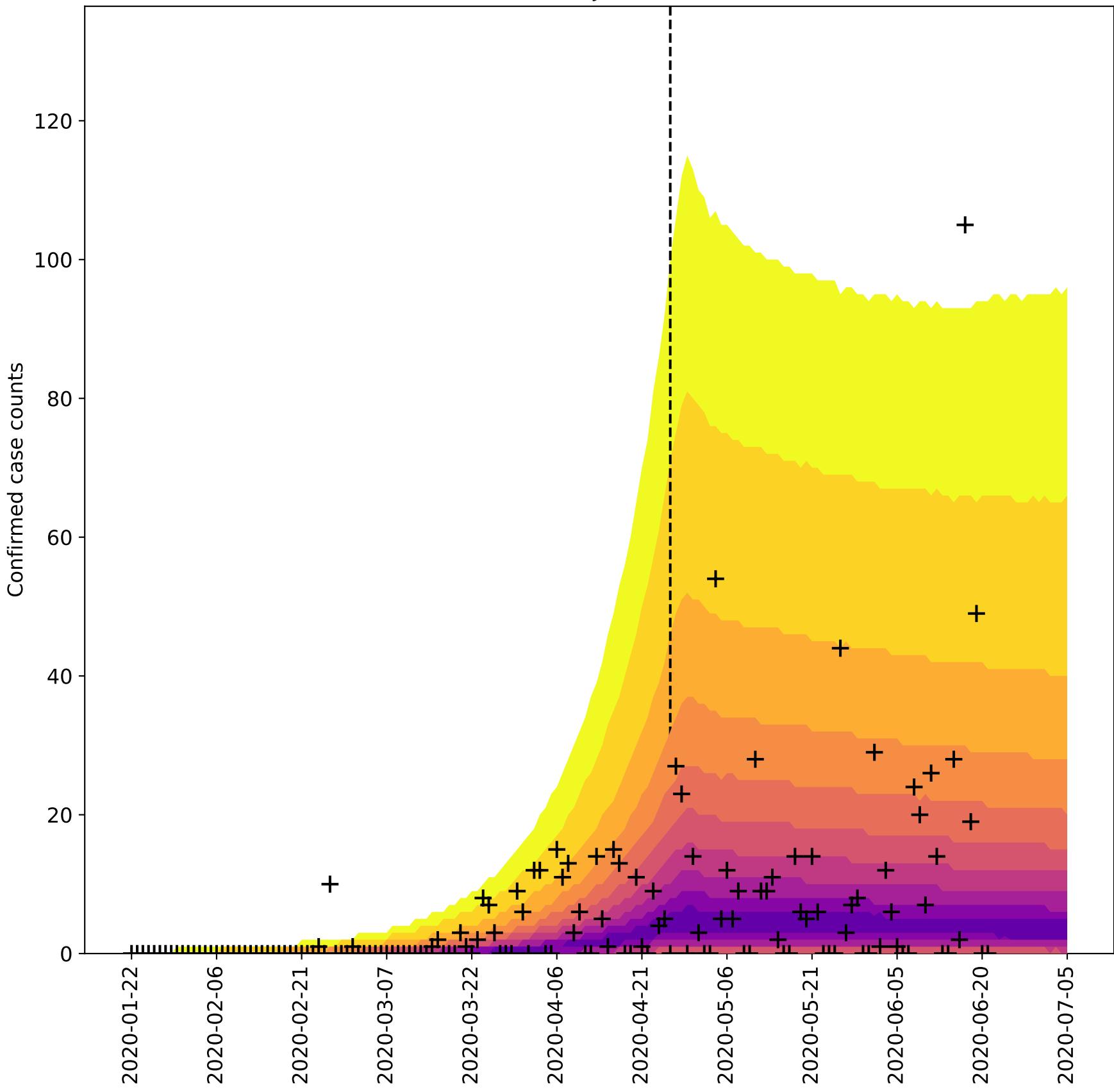
Asheville, NC



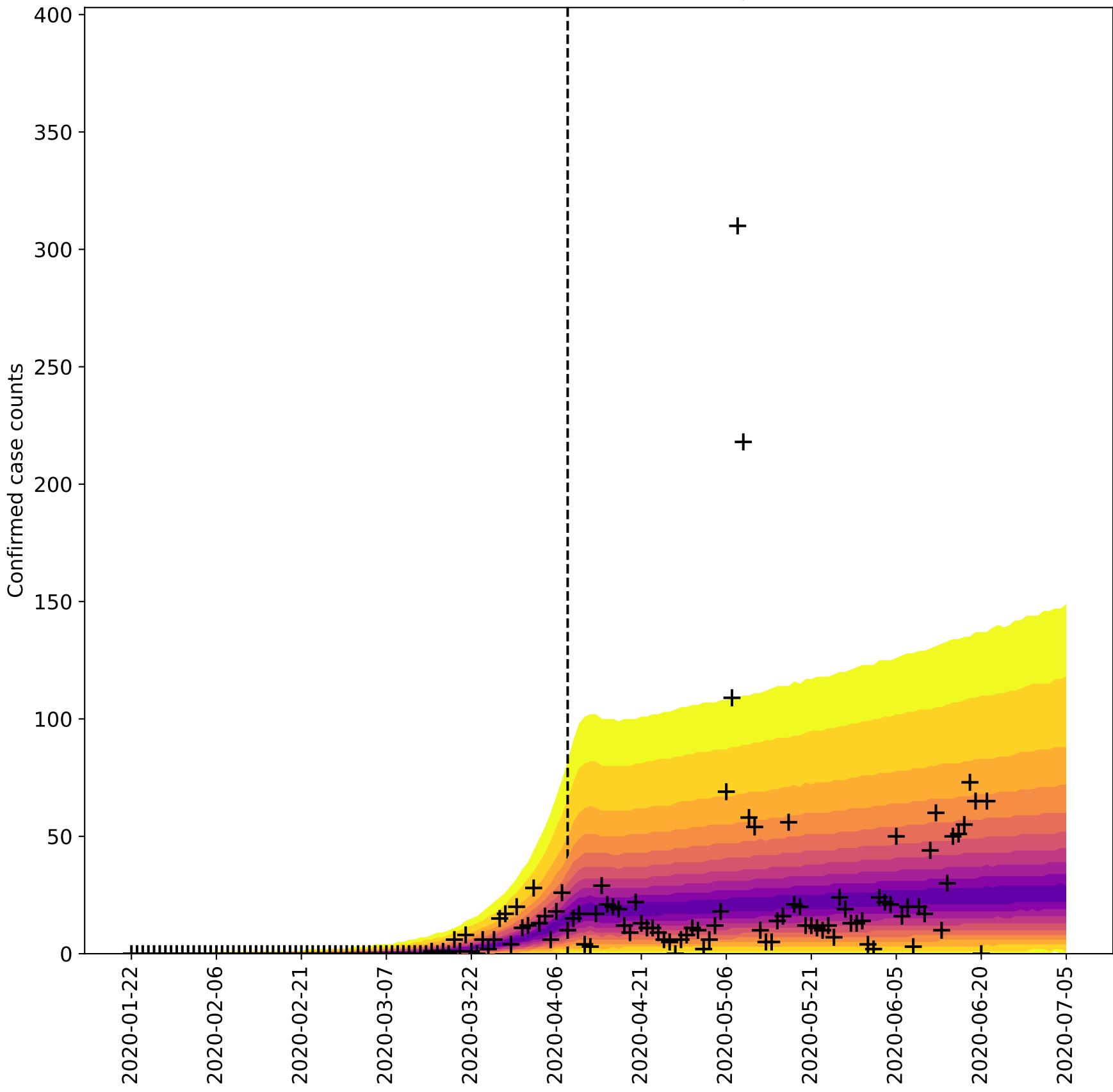
York-Hanover, PA



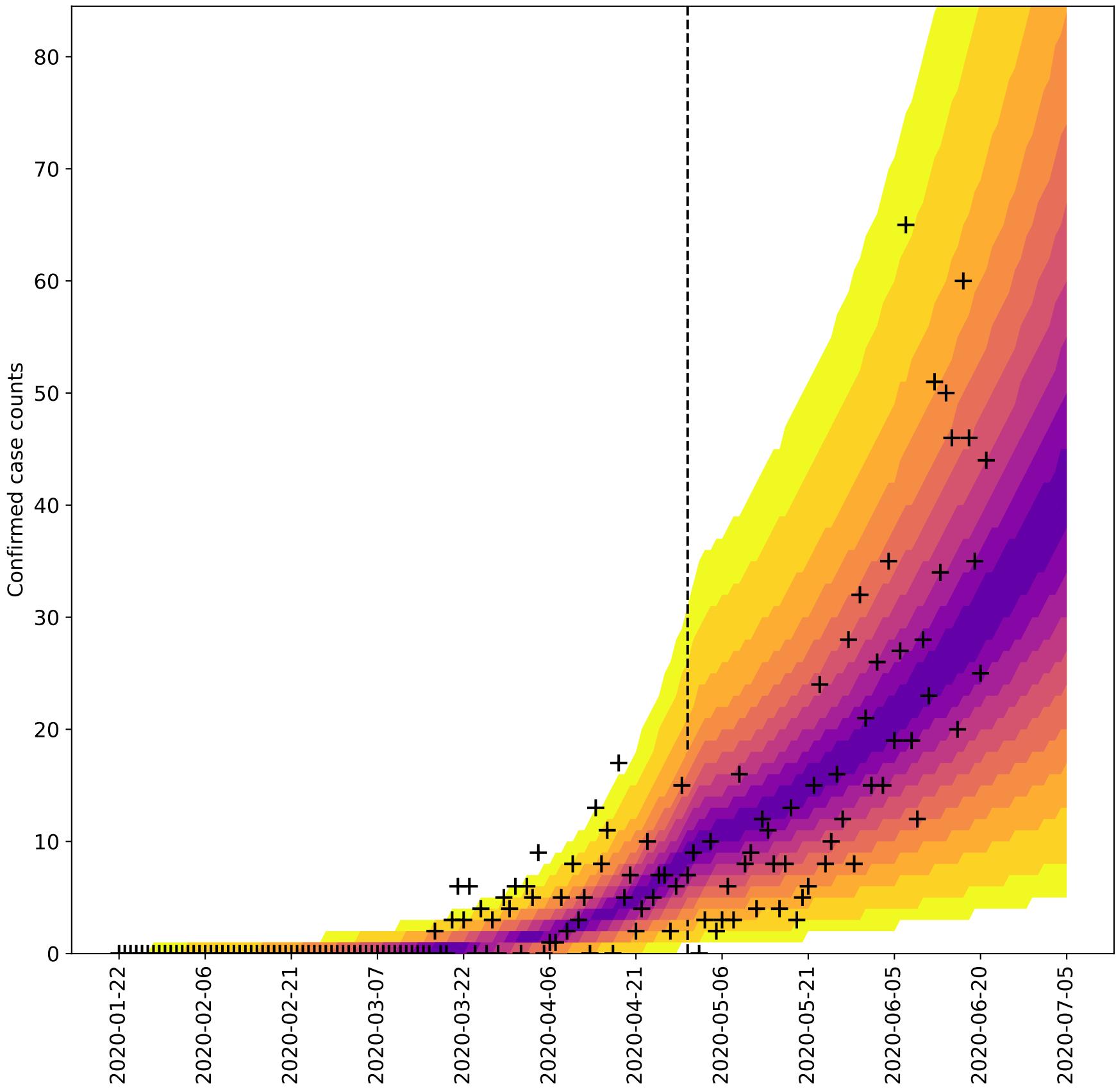
Vallejo, CA



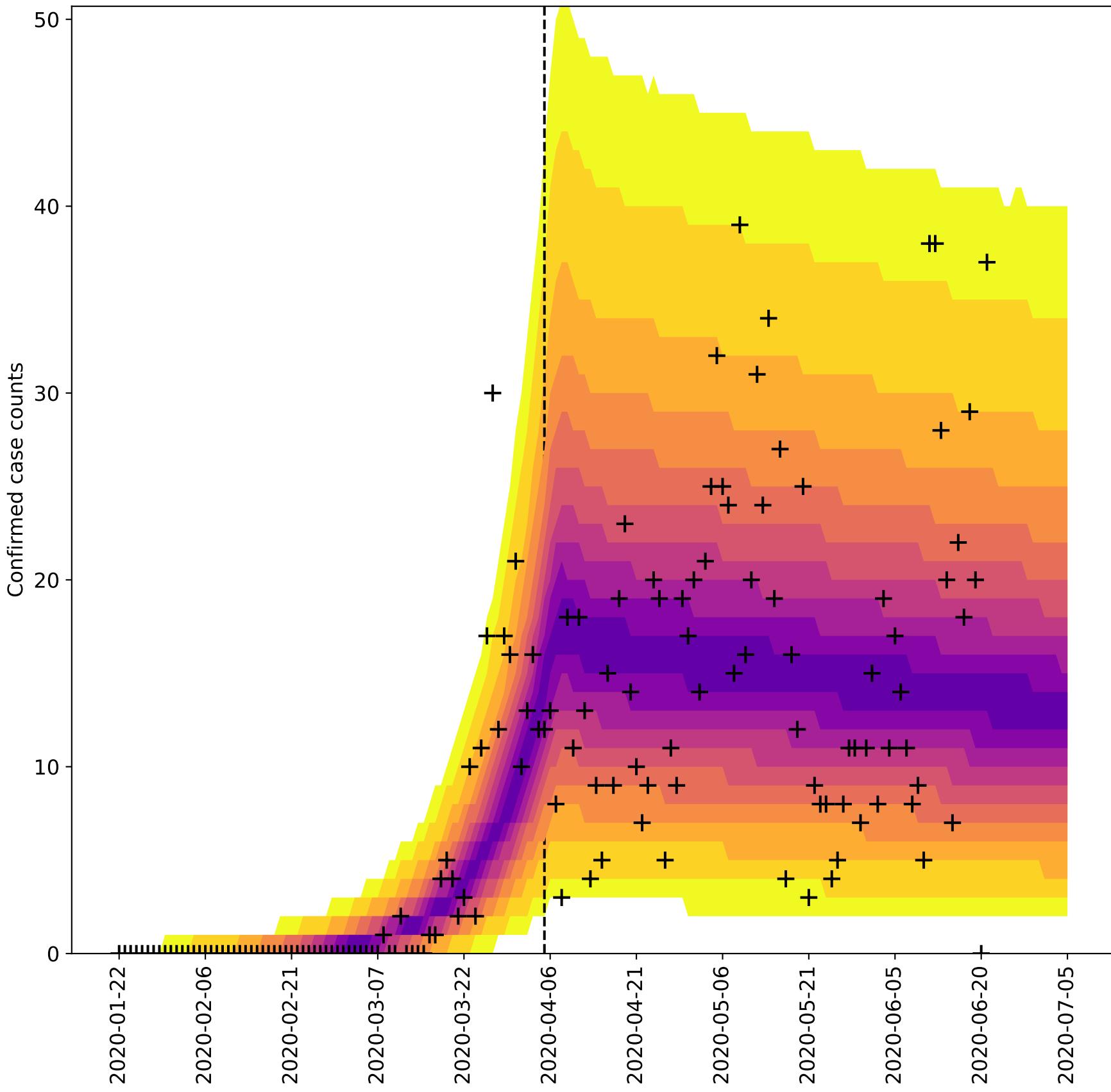
Santa Maria-Santa Barbara, CA



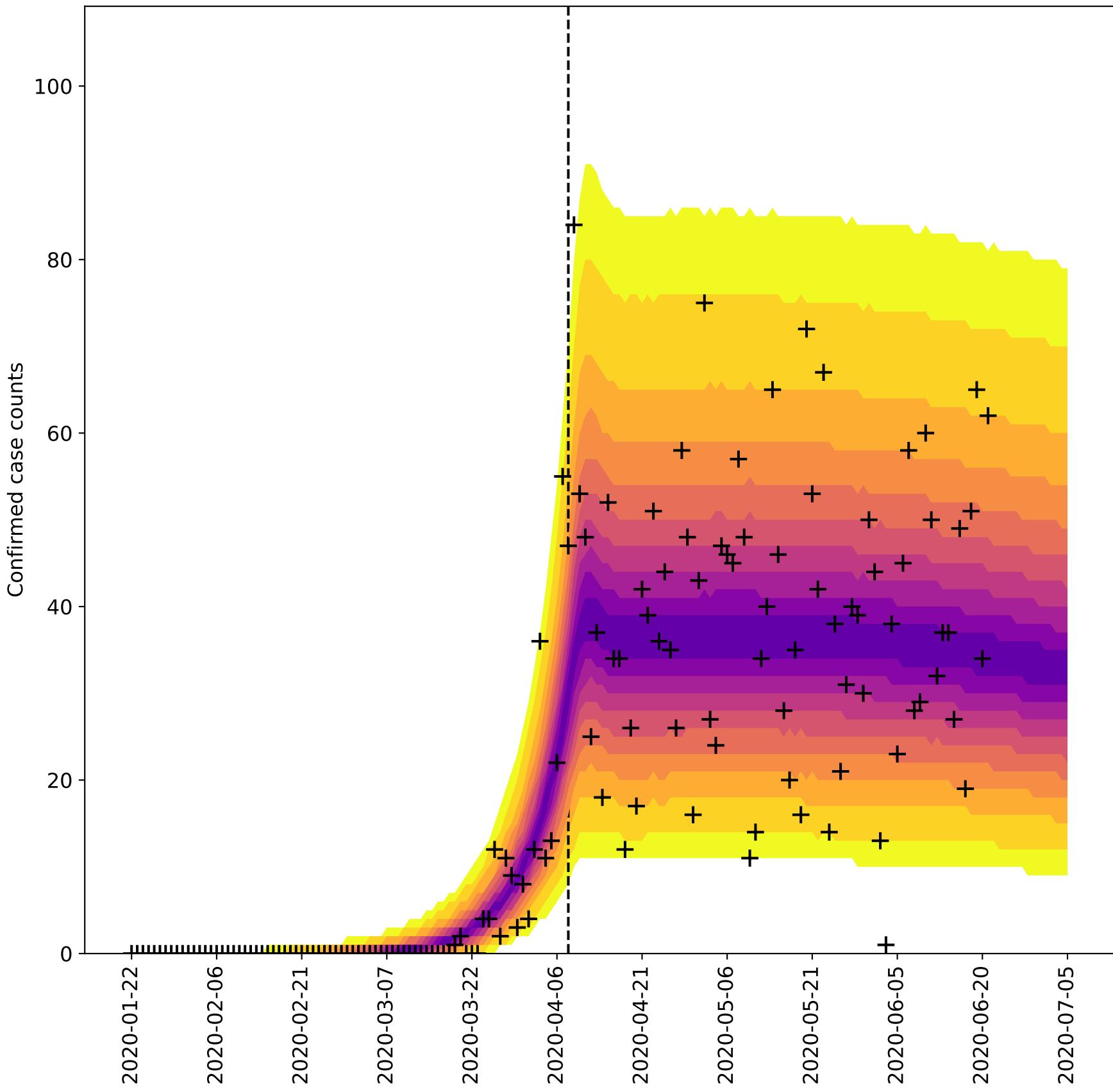
Salinas, CA



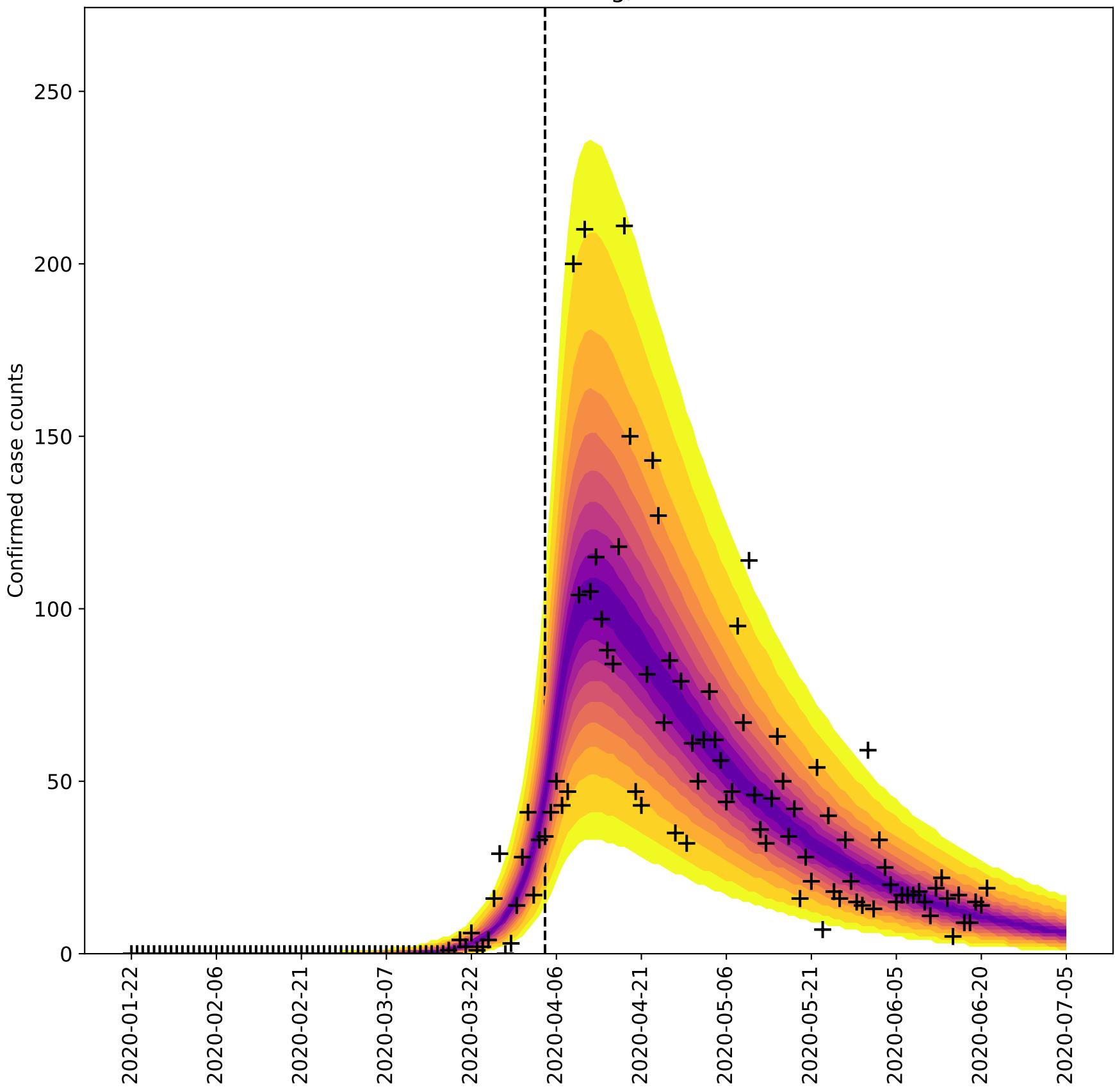
Salem, OR



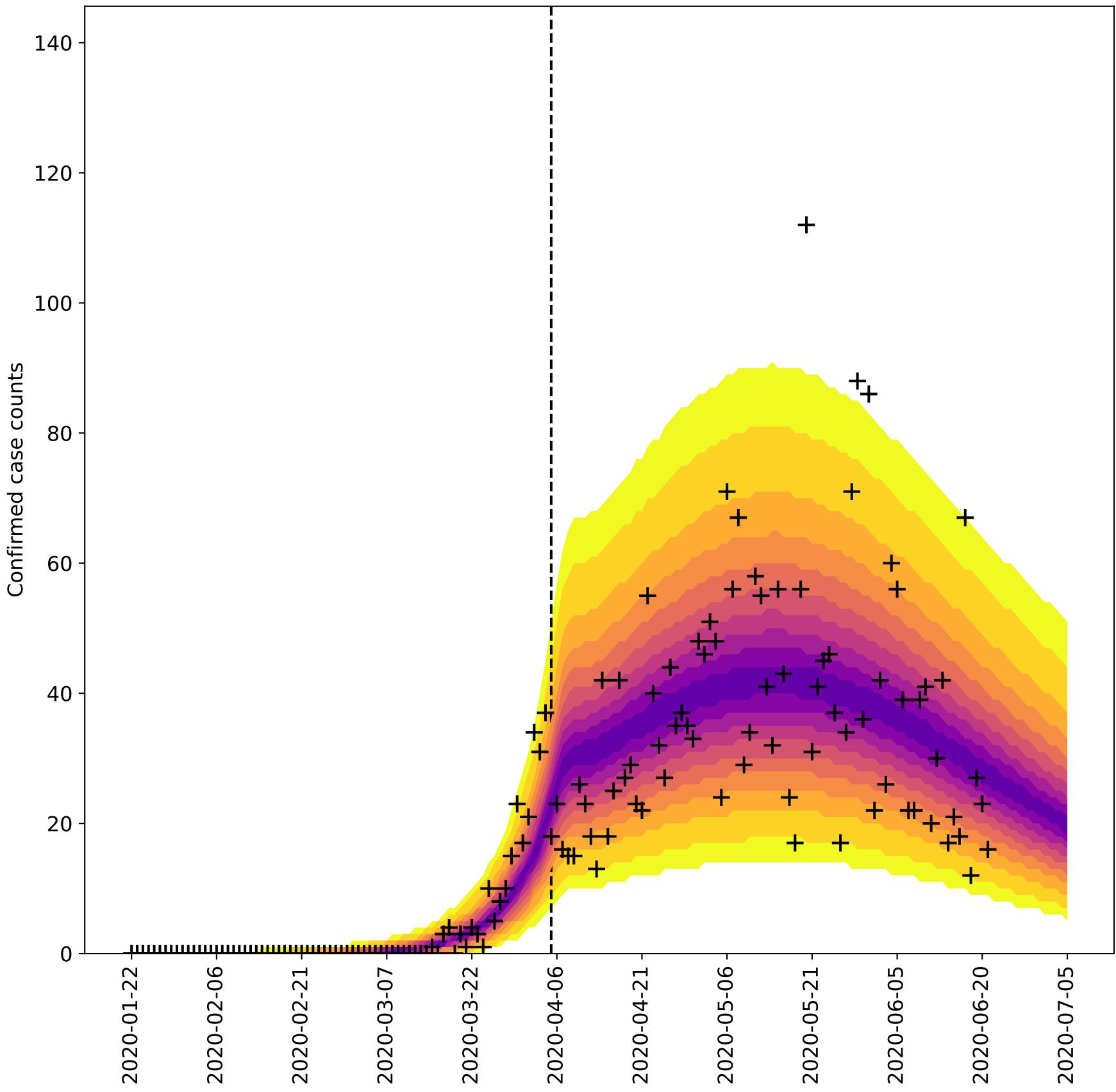
Mobile, AL



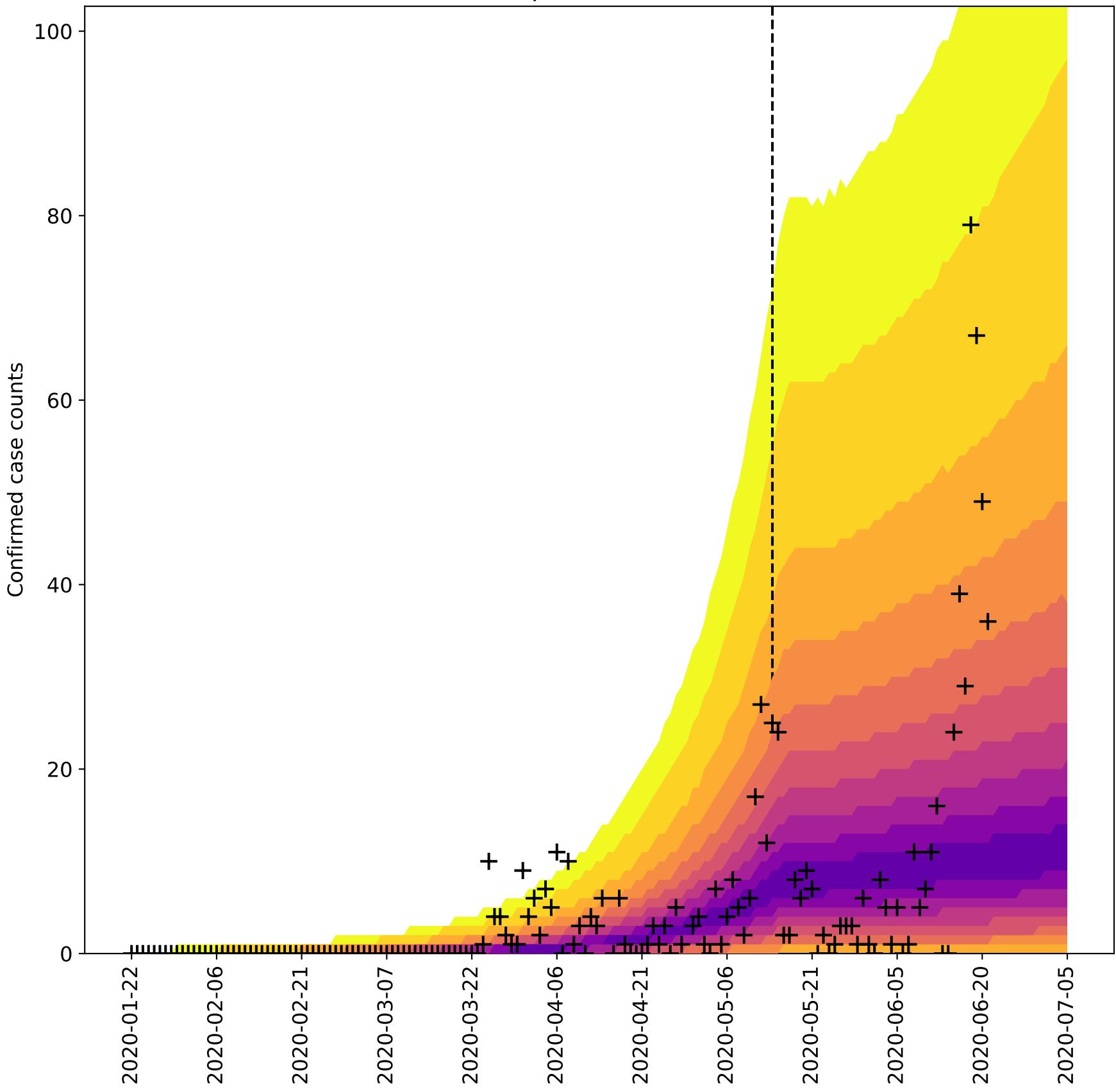
Reading, PA



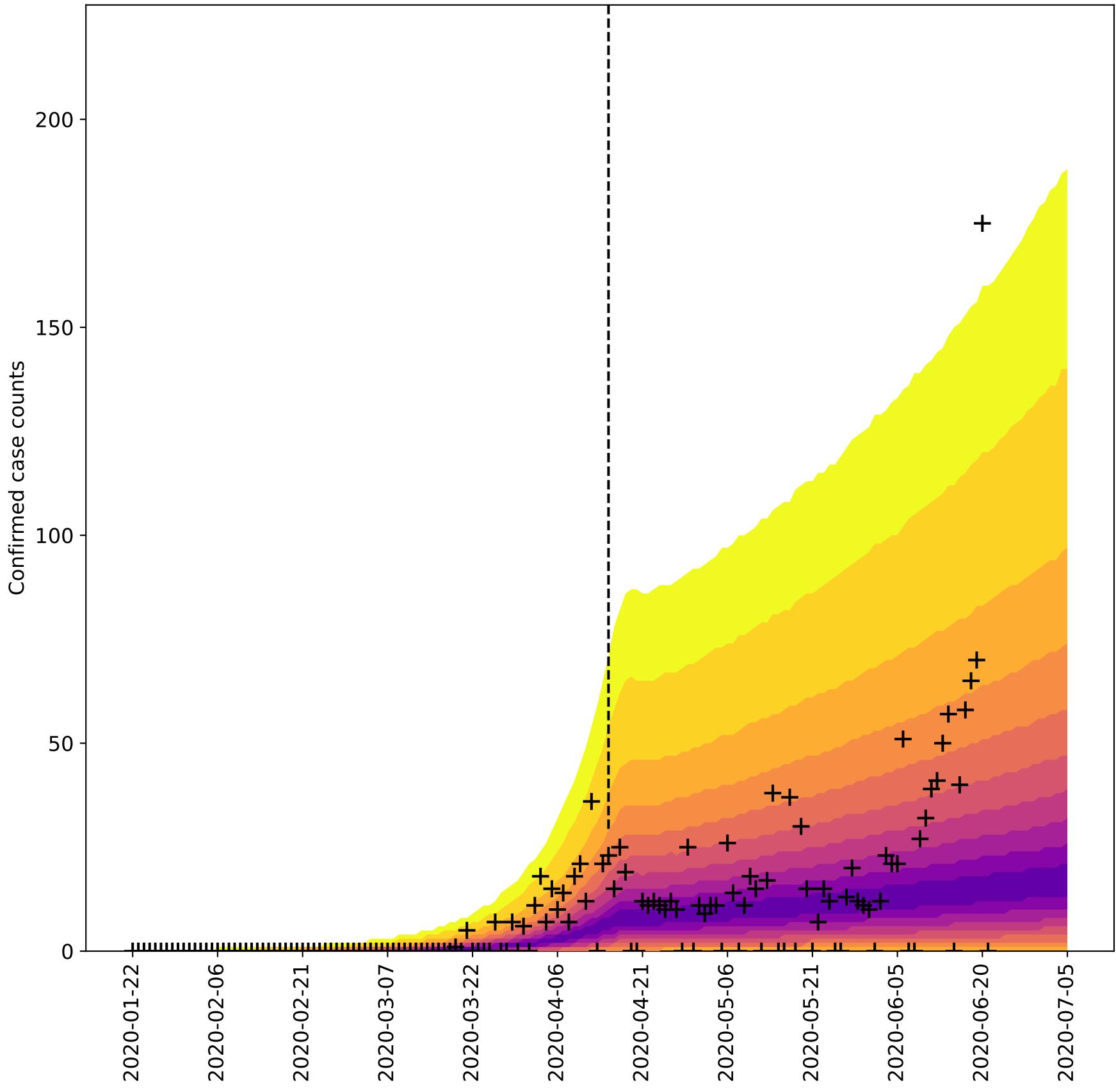
Manchester-Nashua, NH



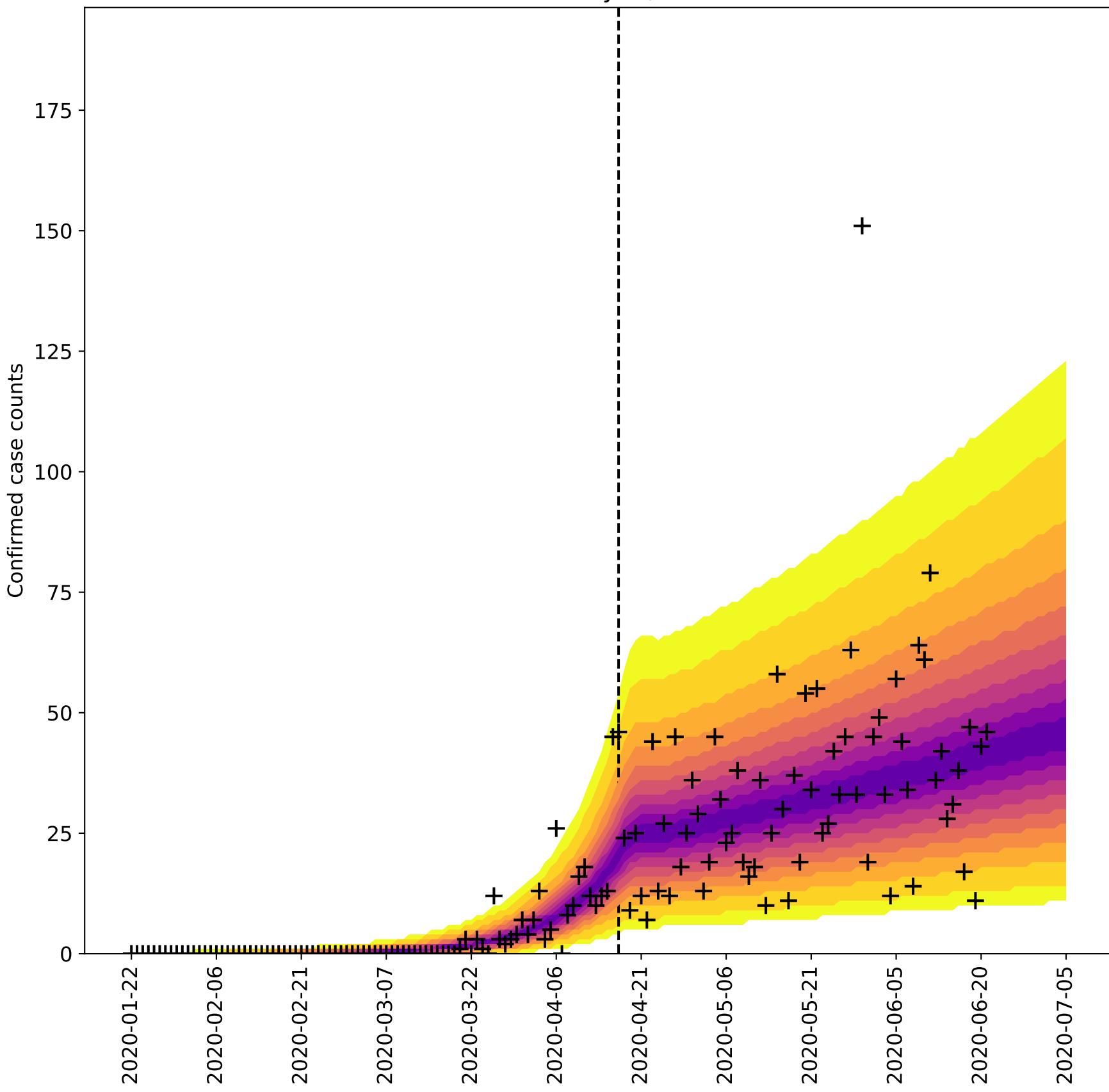
Corpus Christi, TX



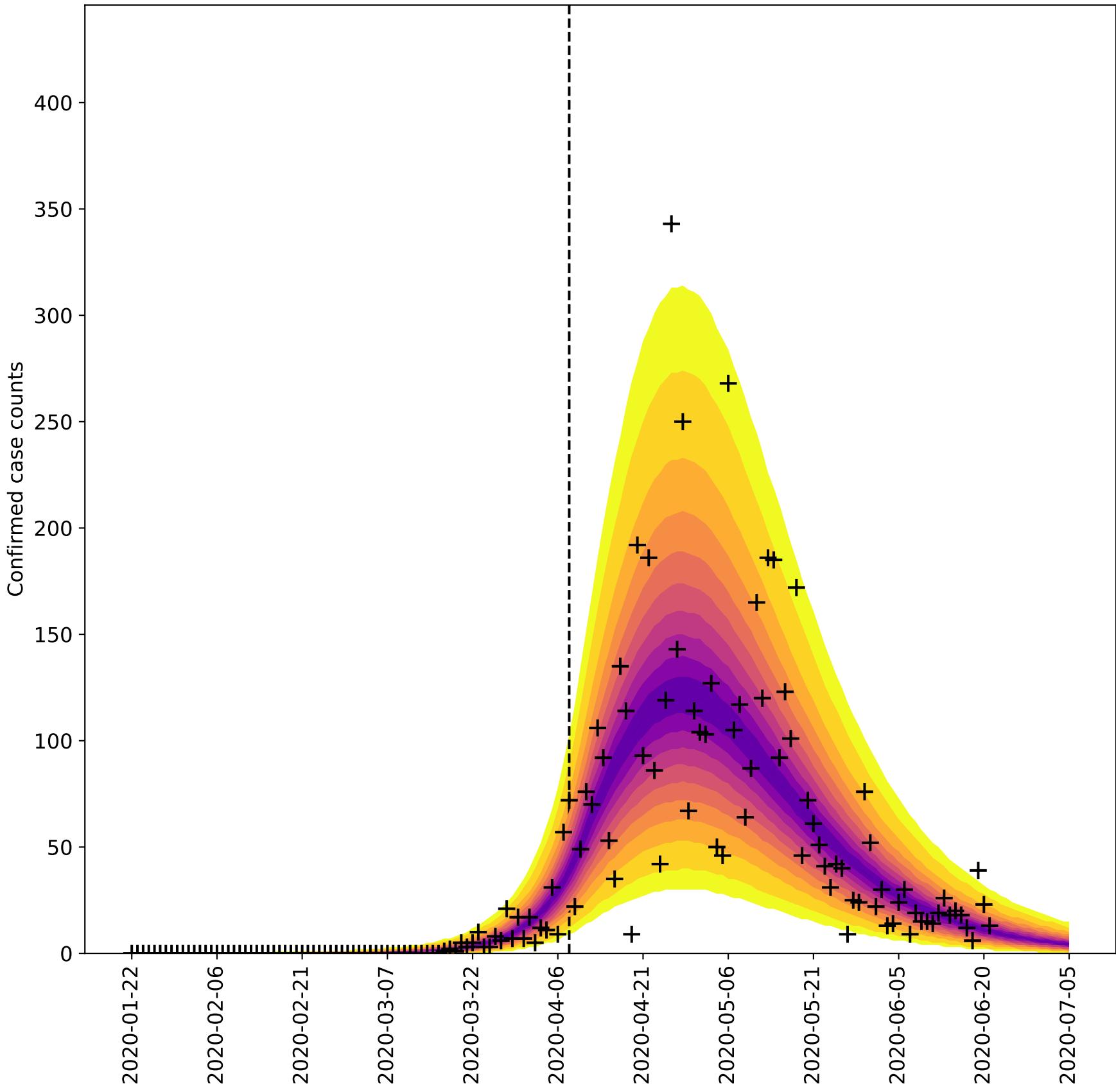
Brownsville-Harlingen, TX



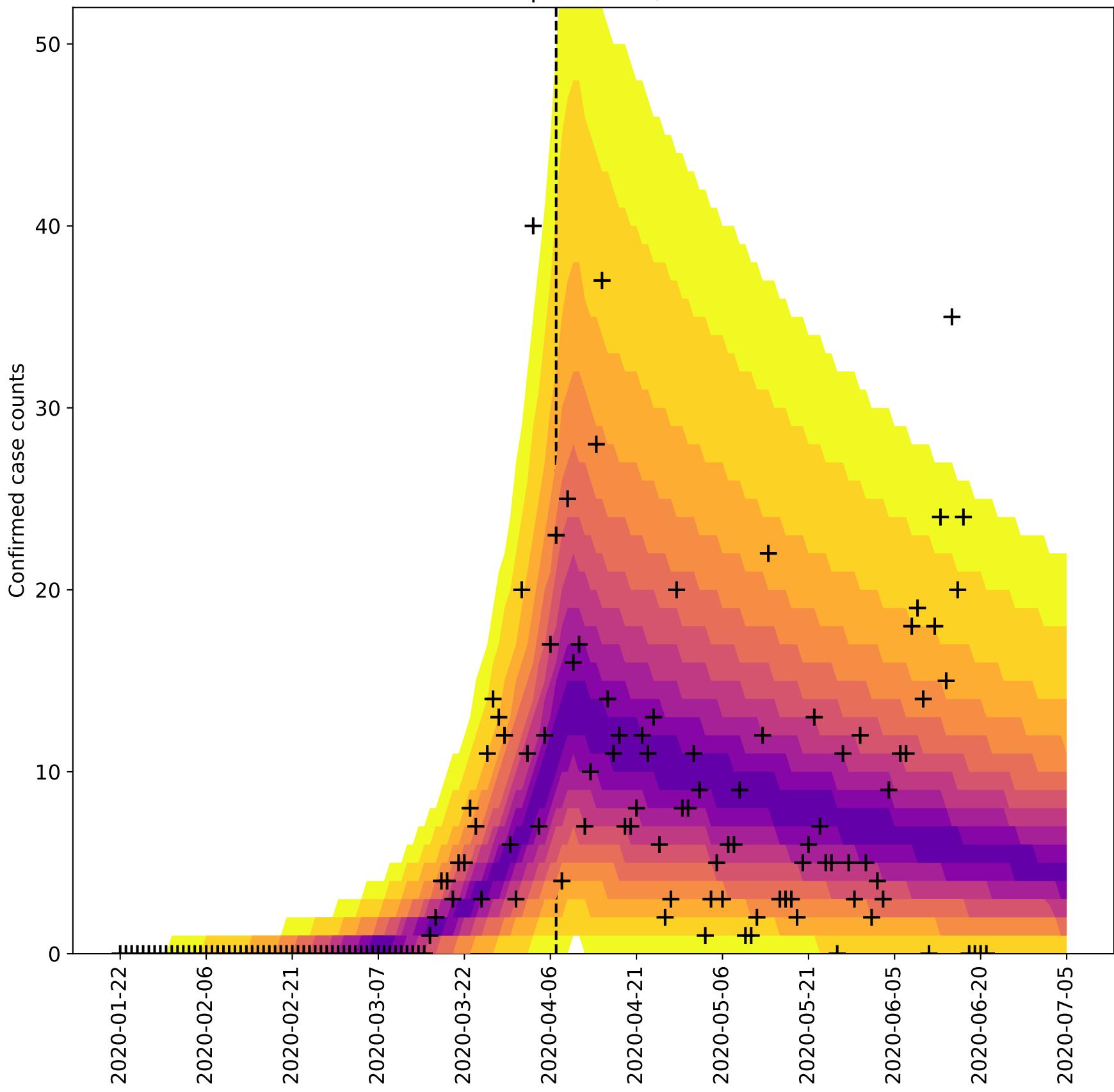
Fort Wayne, IN



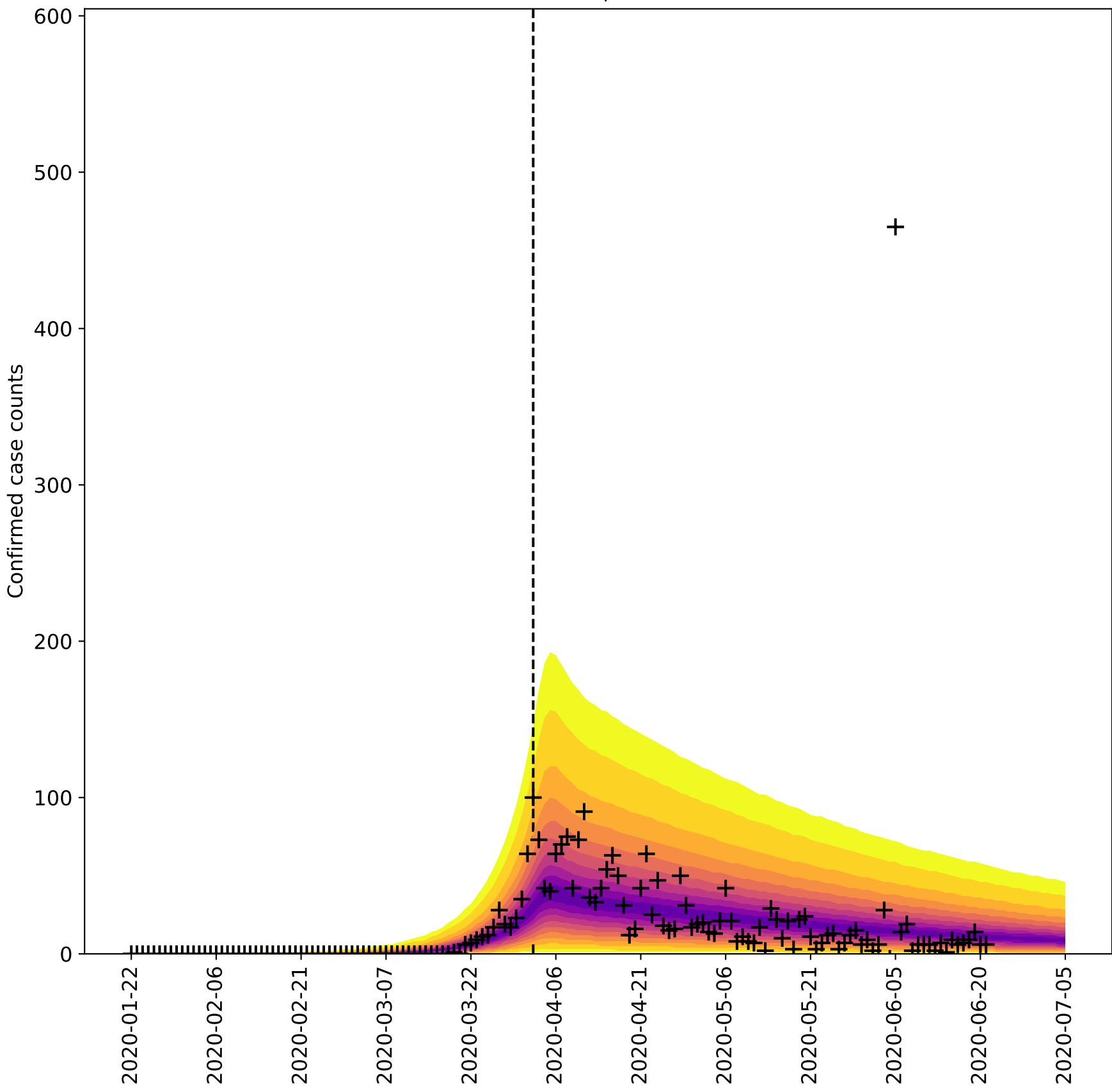
Salisbury, MD-DE



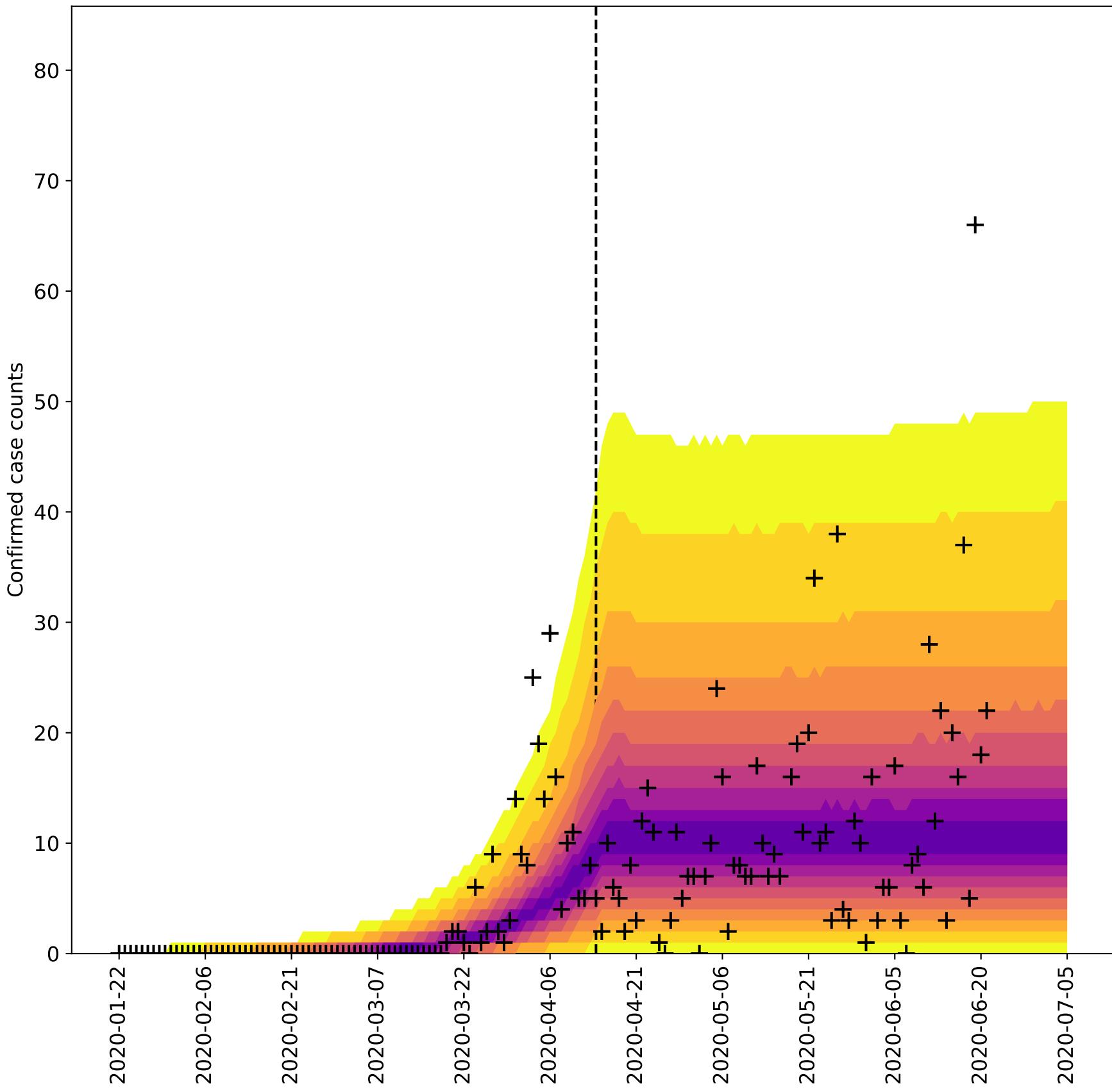
Gulfport-Biloxi, MS



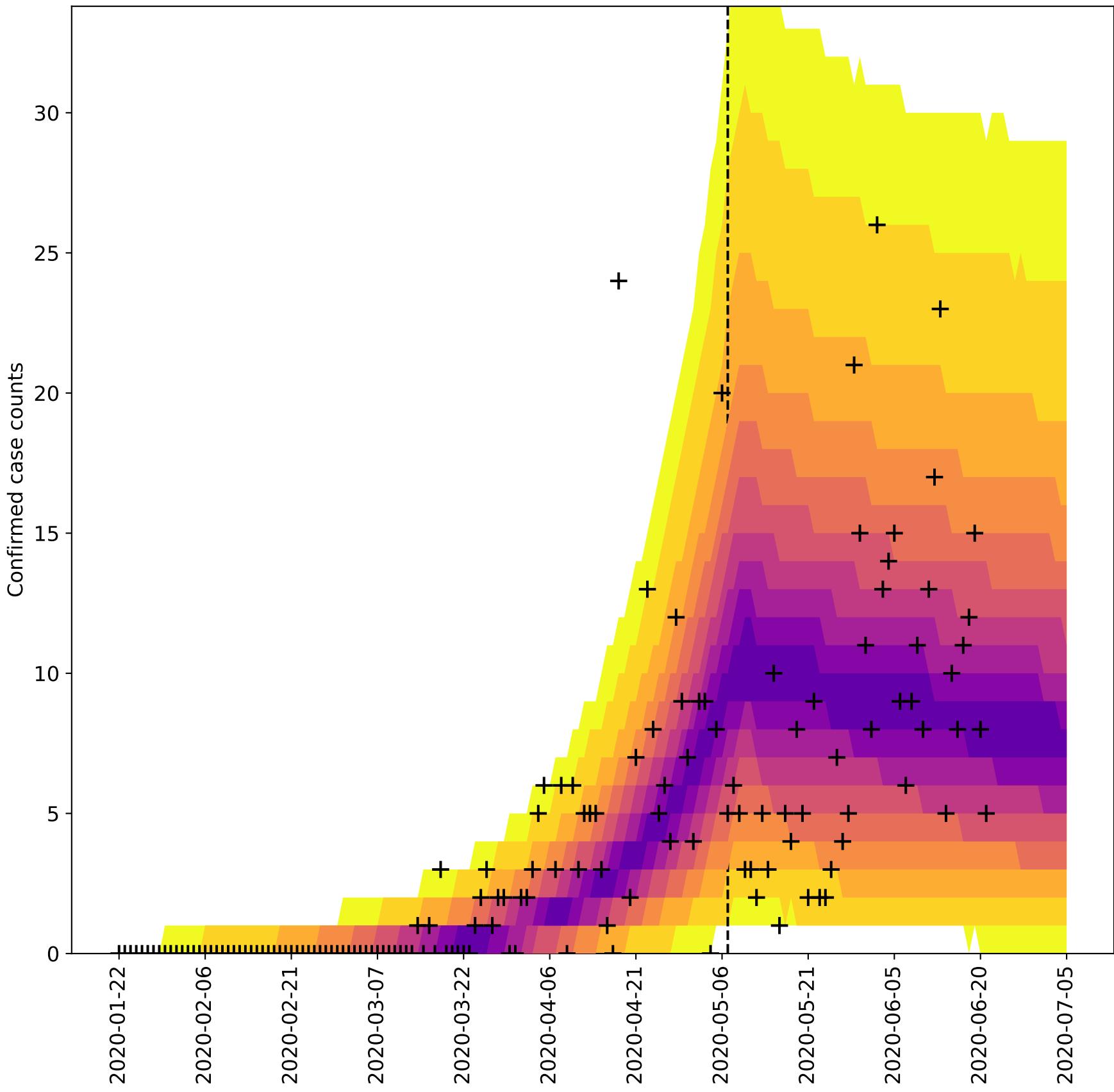
Flint, MI



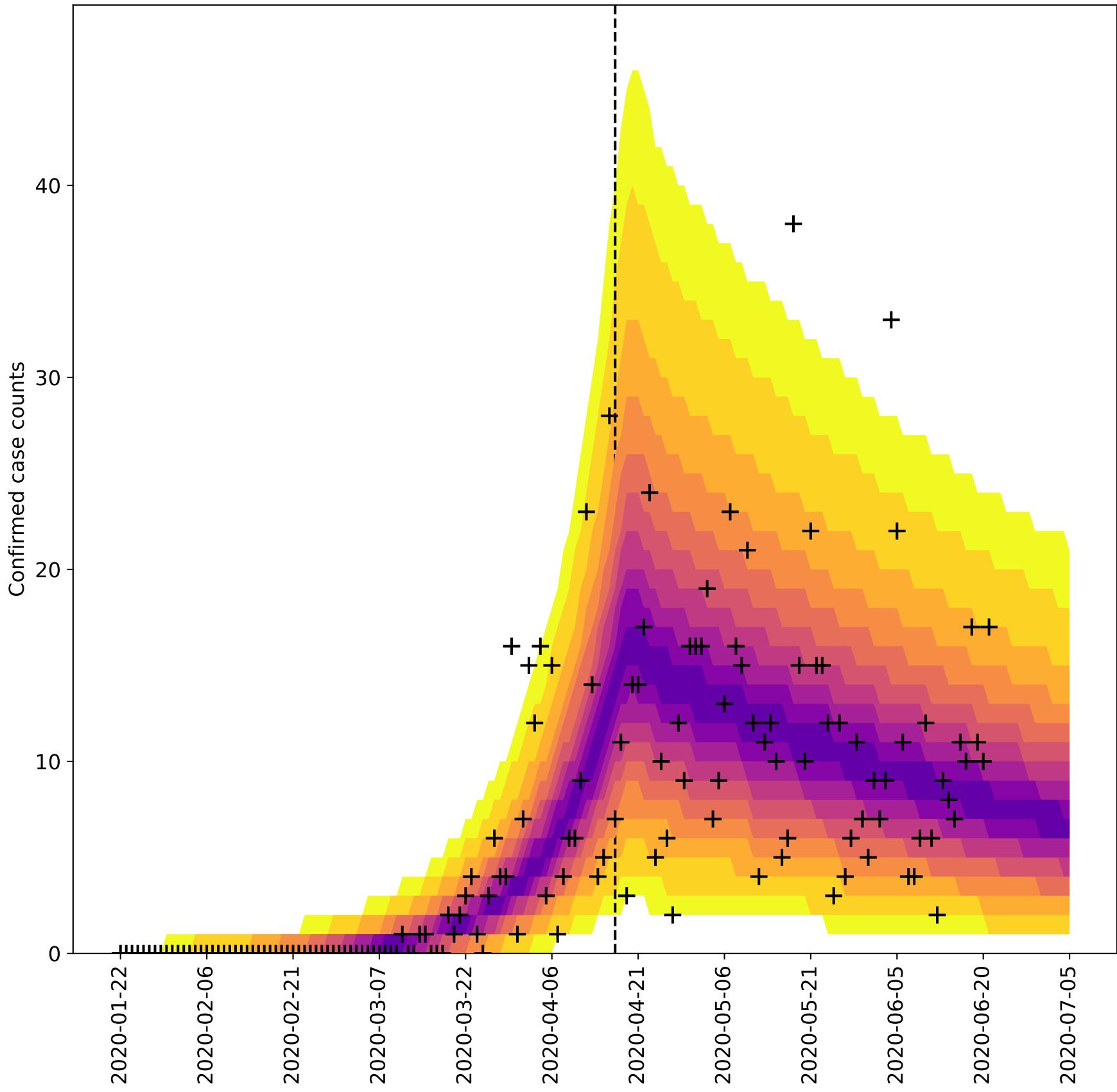
Savannah, GA



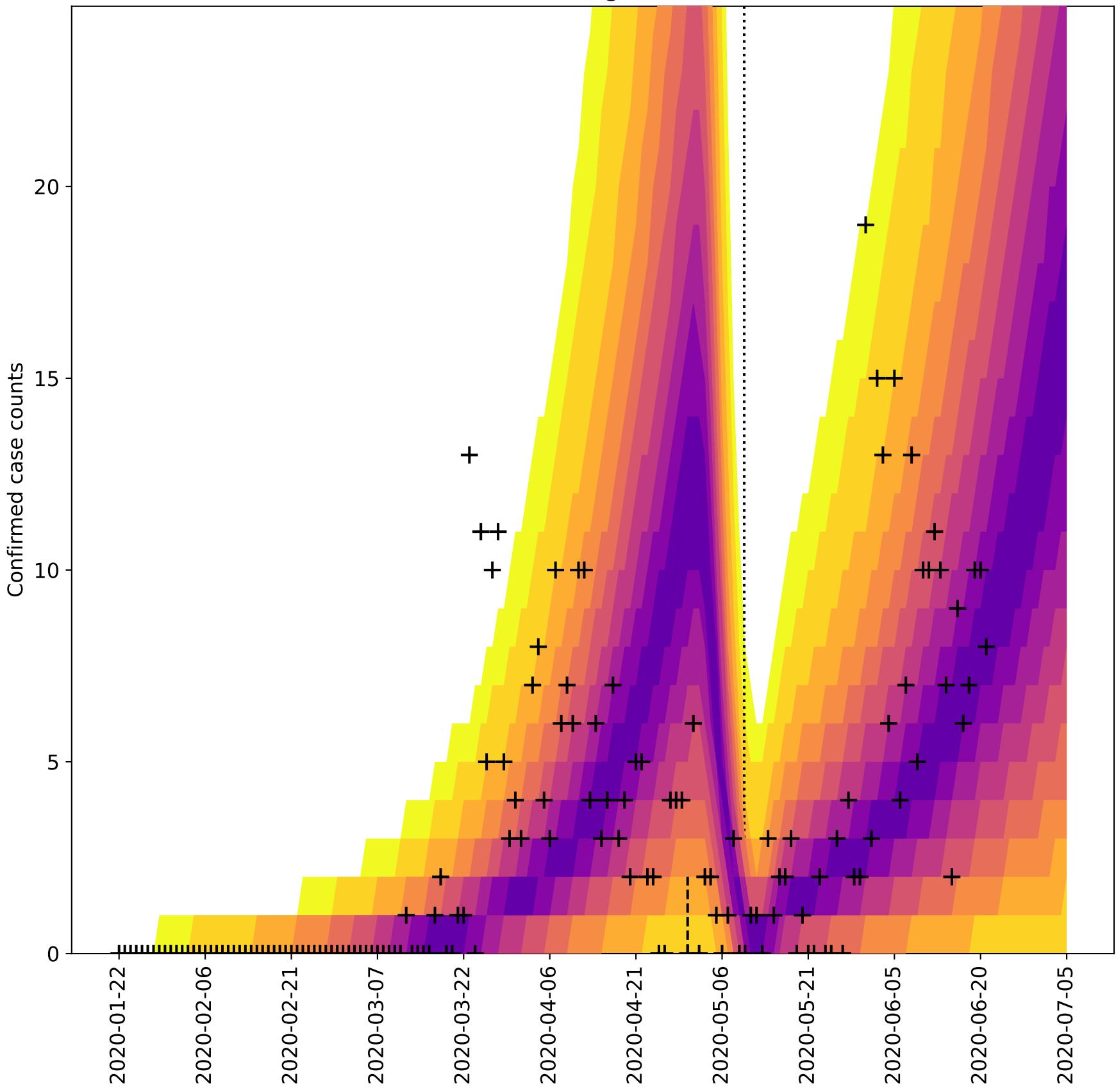
Peoria, IL



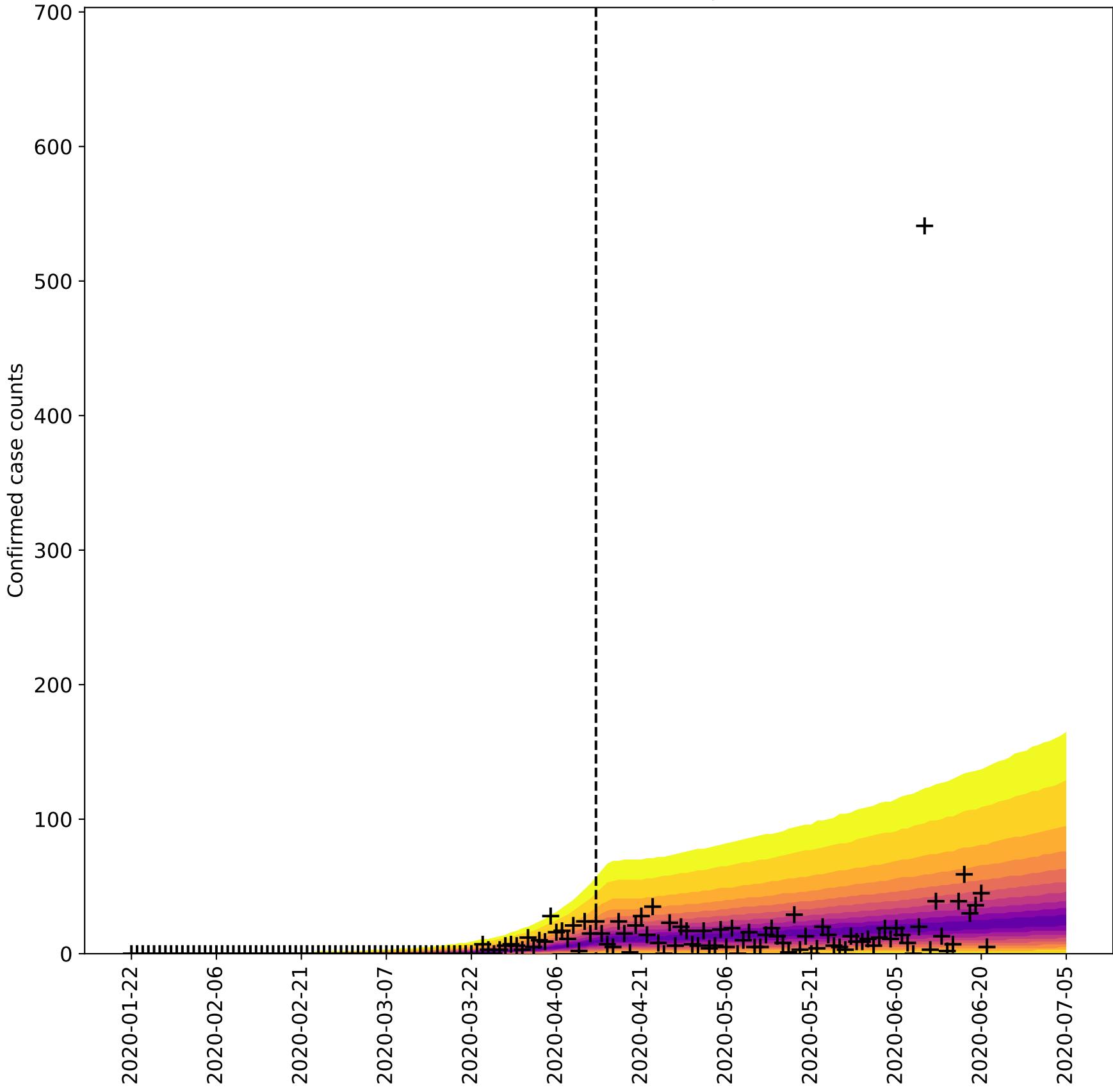
Canton-Massillon, OH



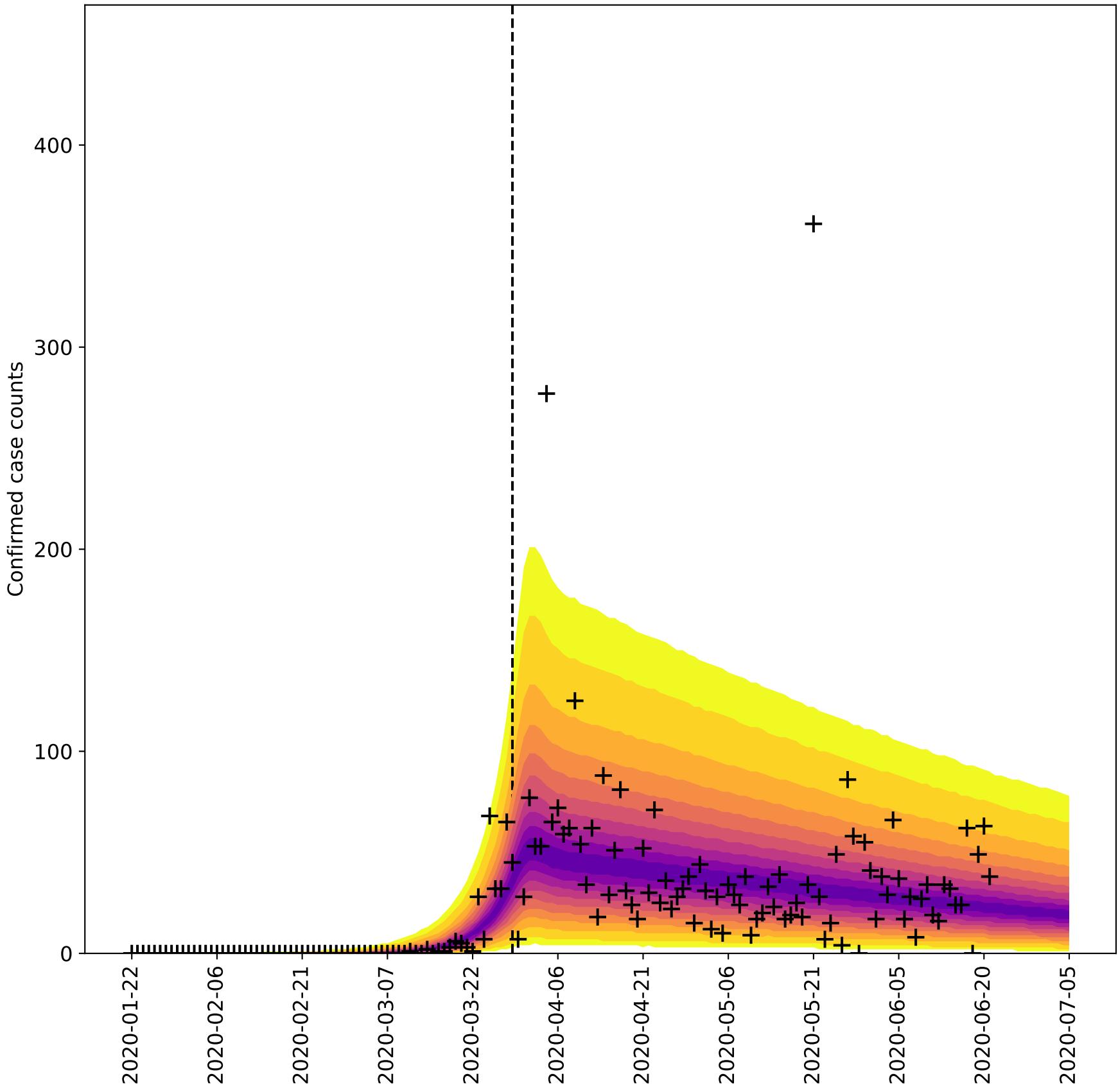
Anchorage, AK



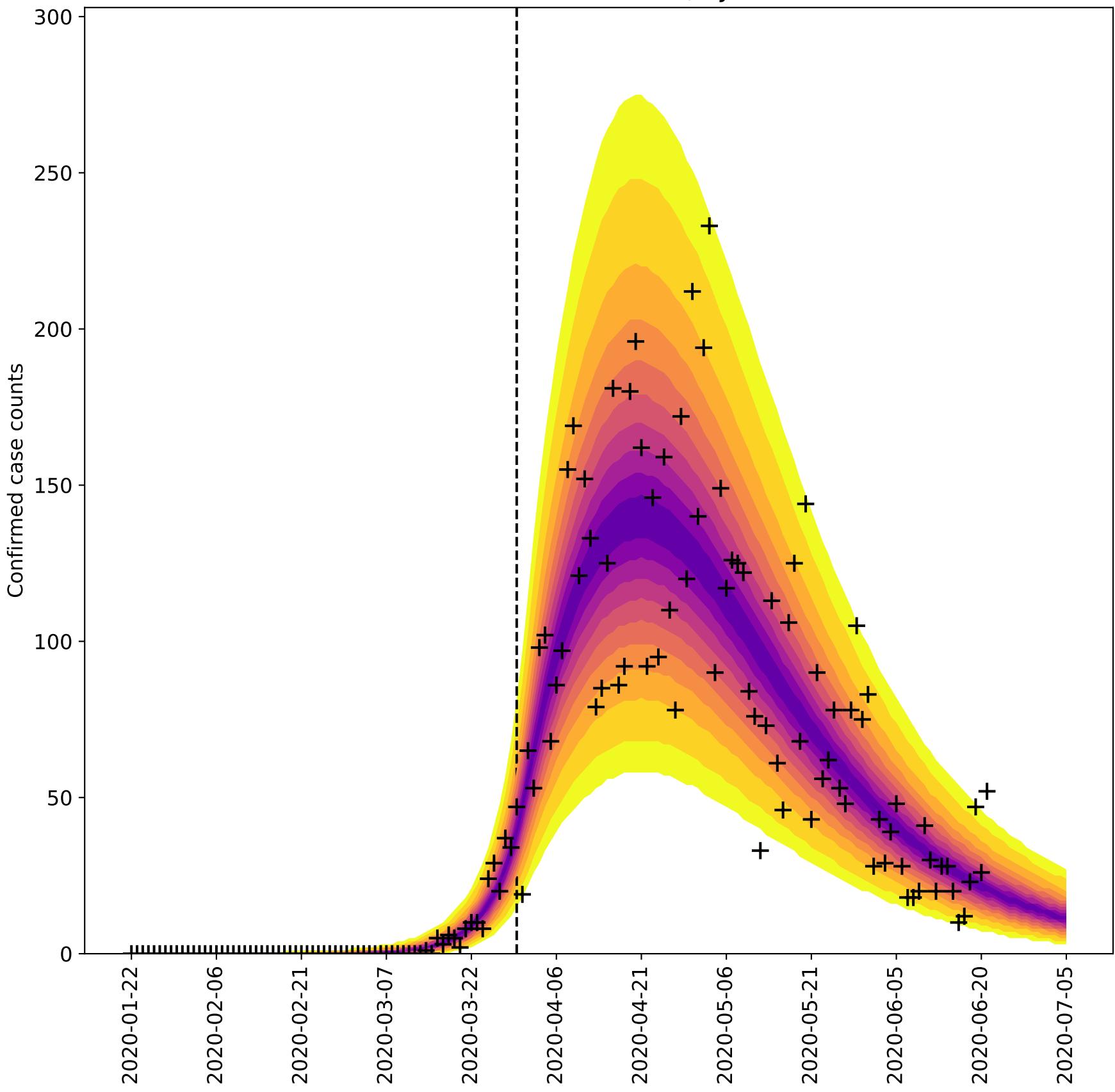
Beaumont-Port Arthur, TX



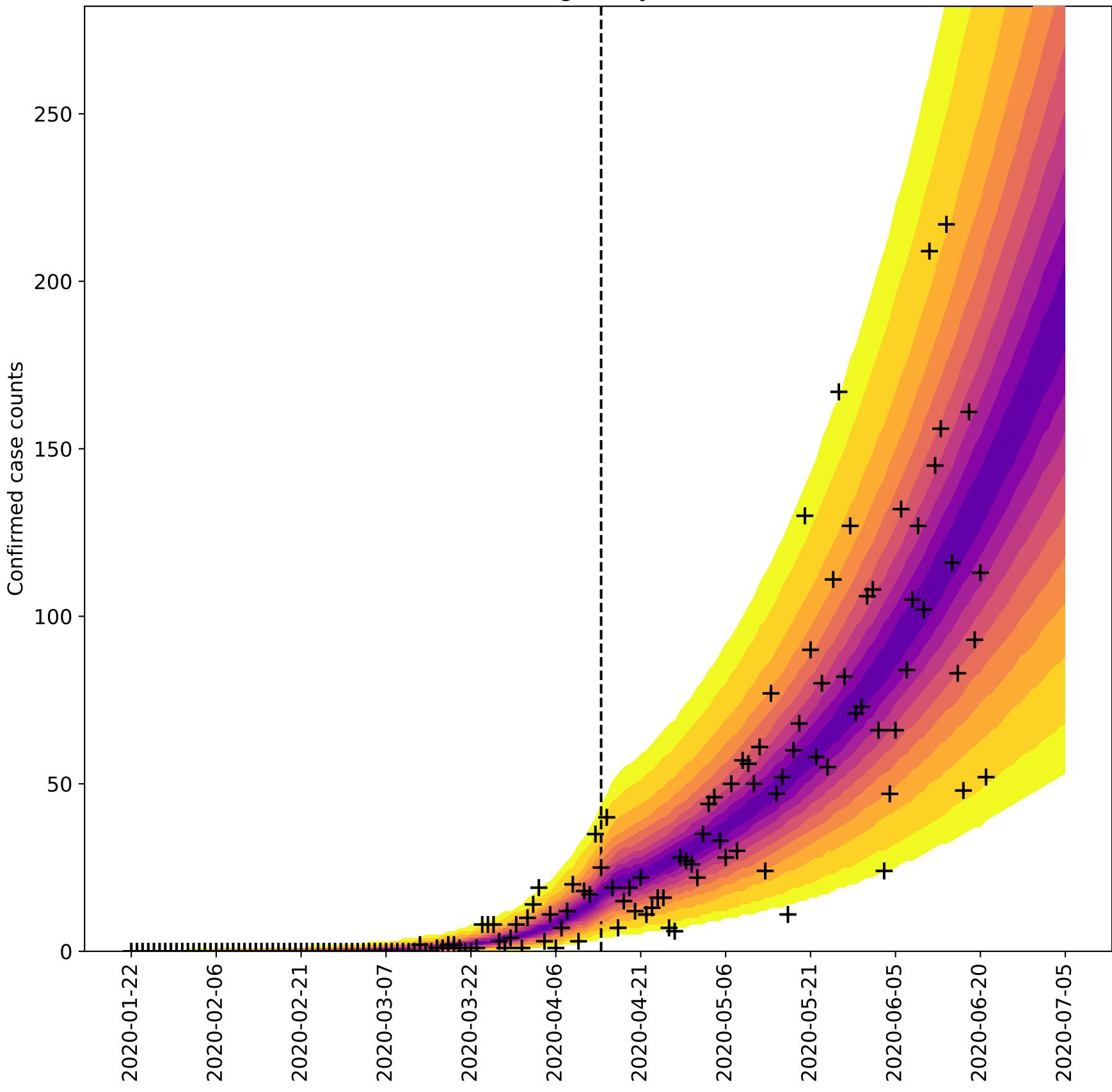
Shreveport-Bossier City, LA



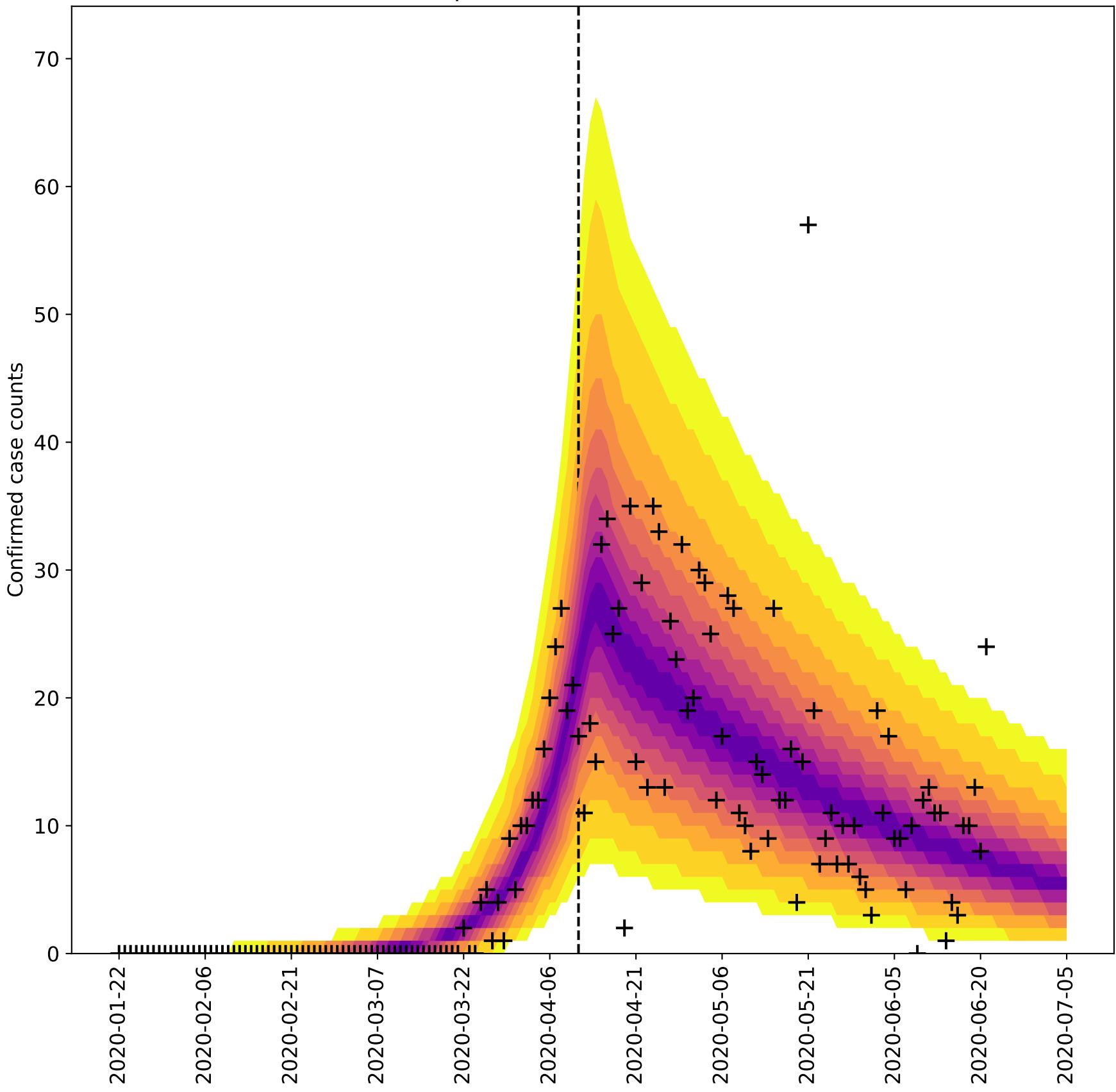
Trenton-Princeton, NJ



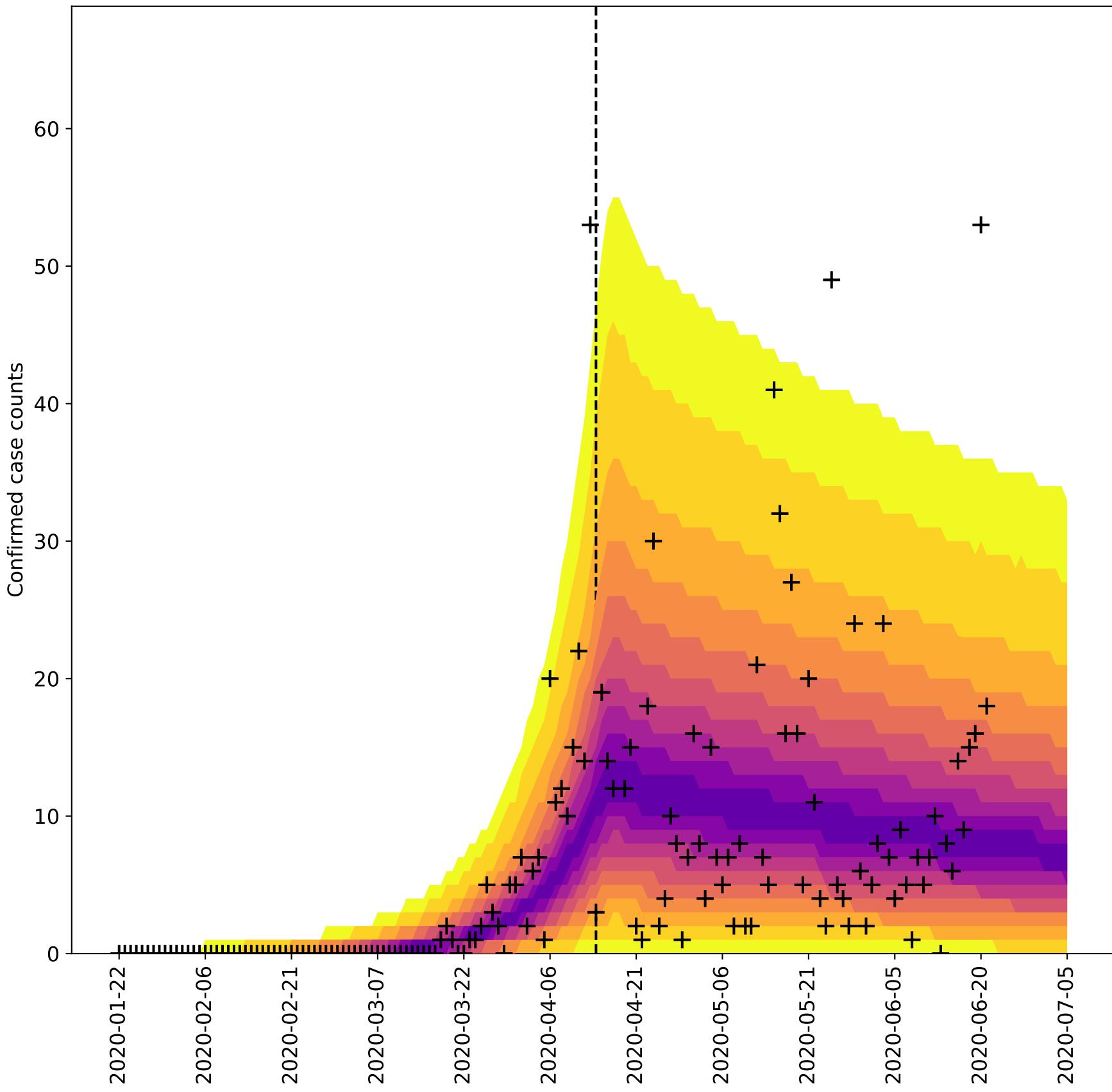
Montgomery, AL



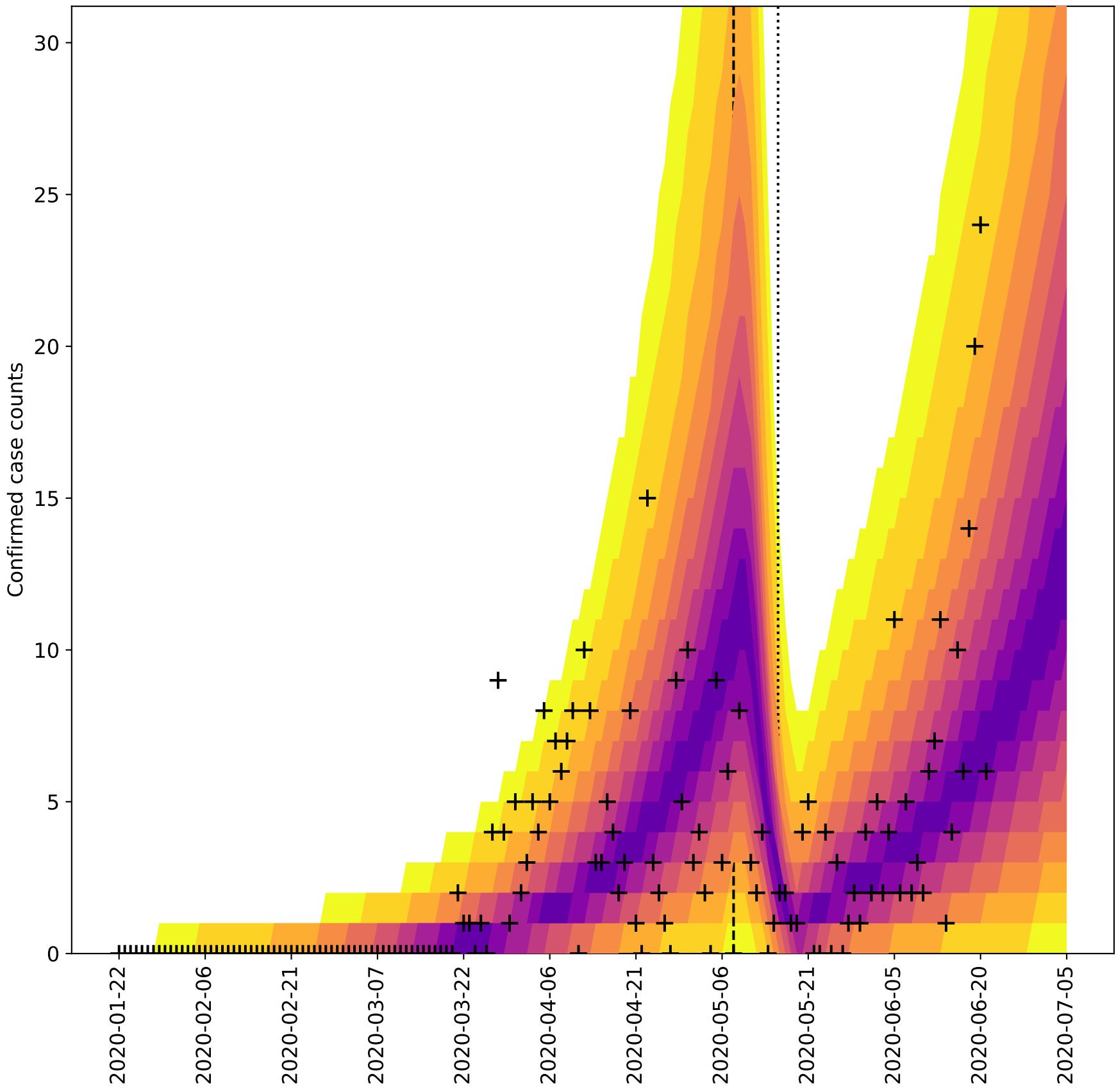
Davenport-Moline-Rock Island, IA-IL



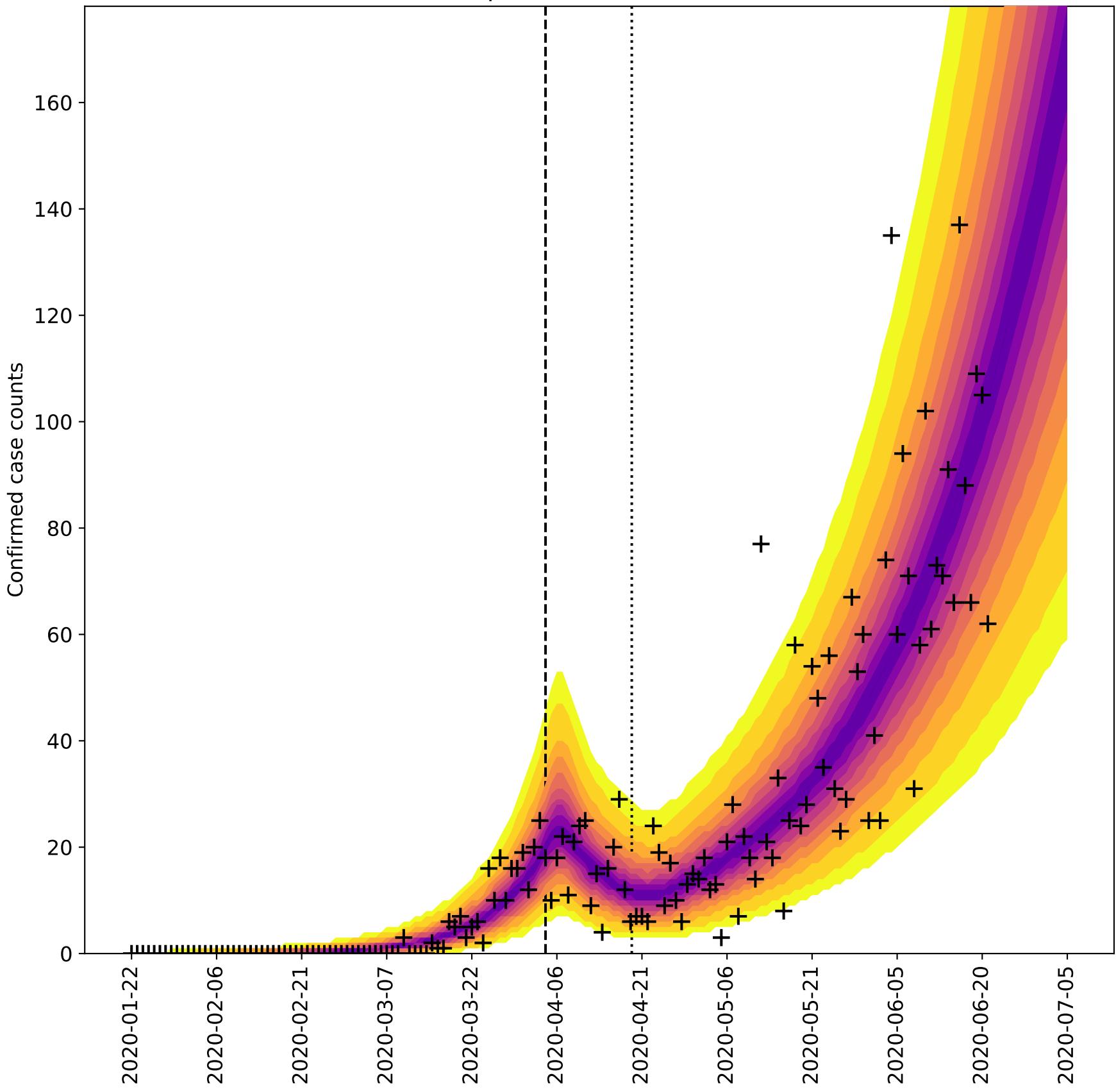
Tallahassee, FL



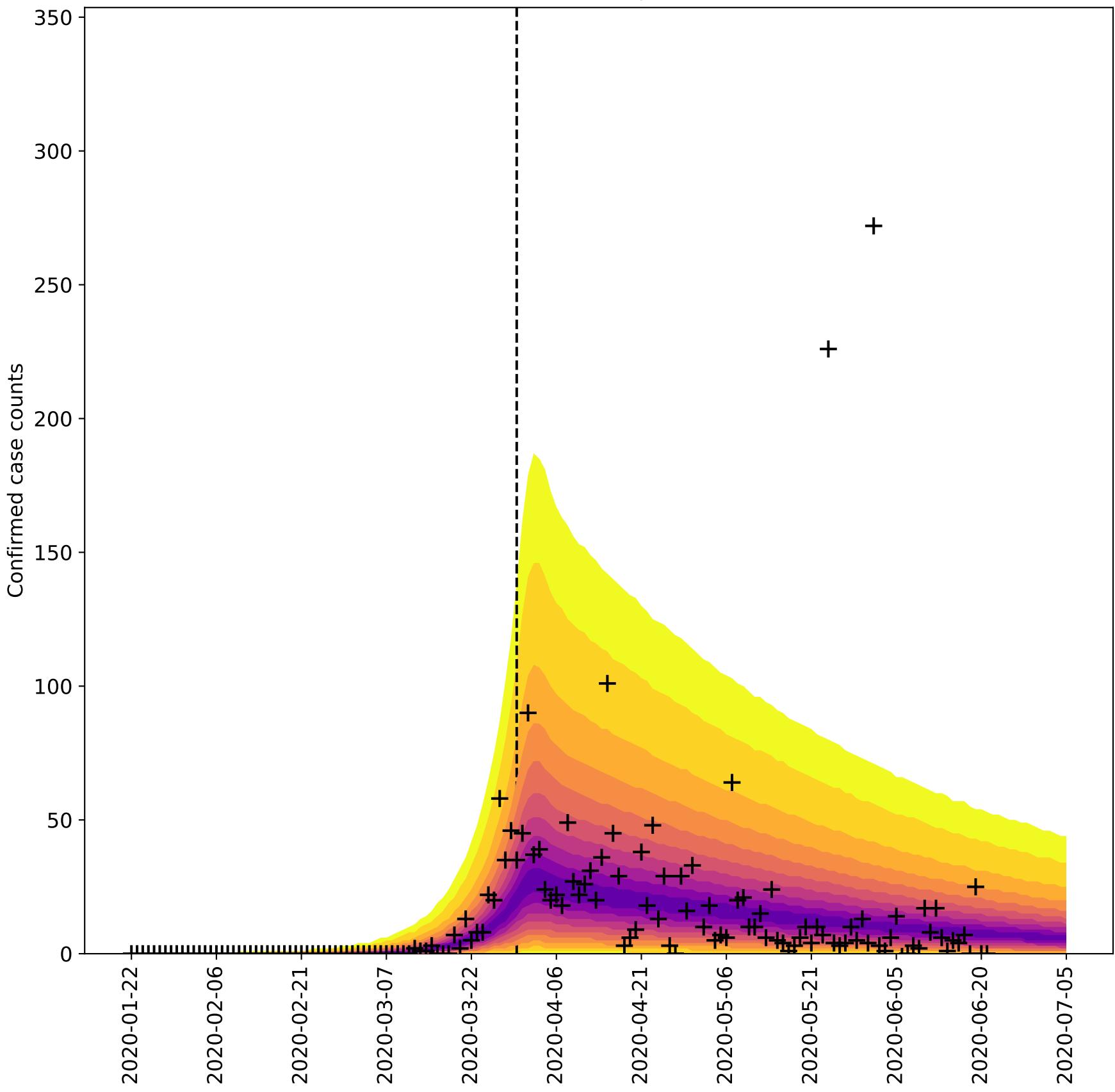
Ocala, FL



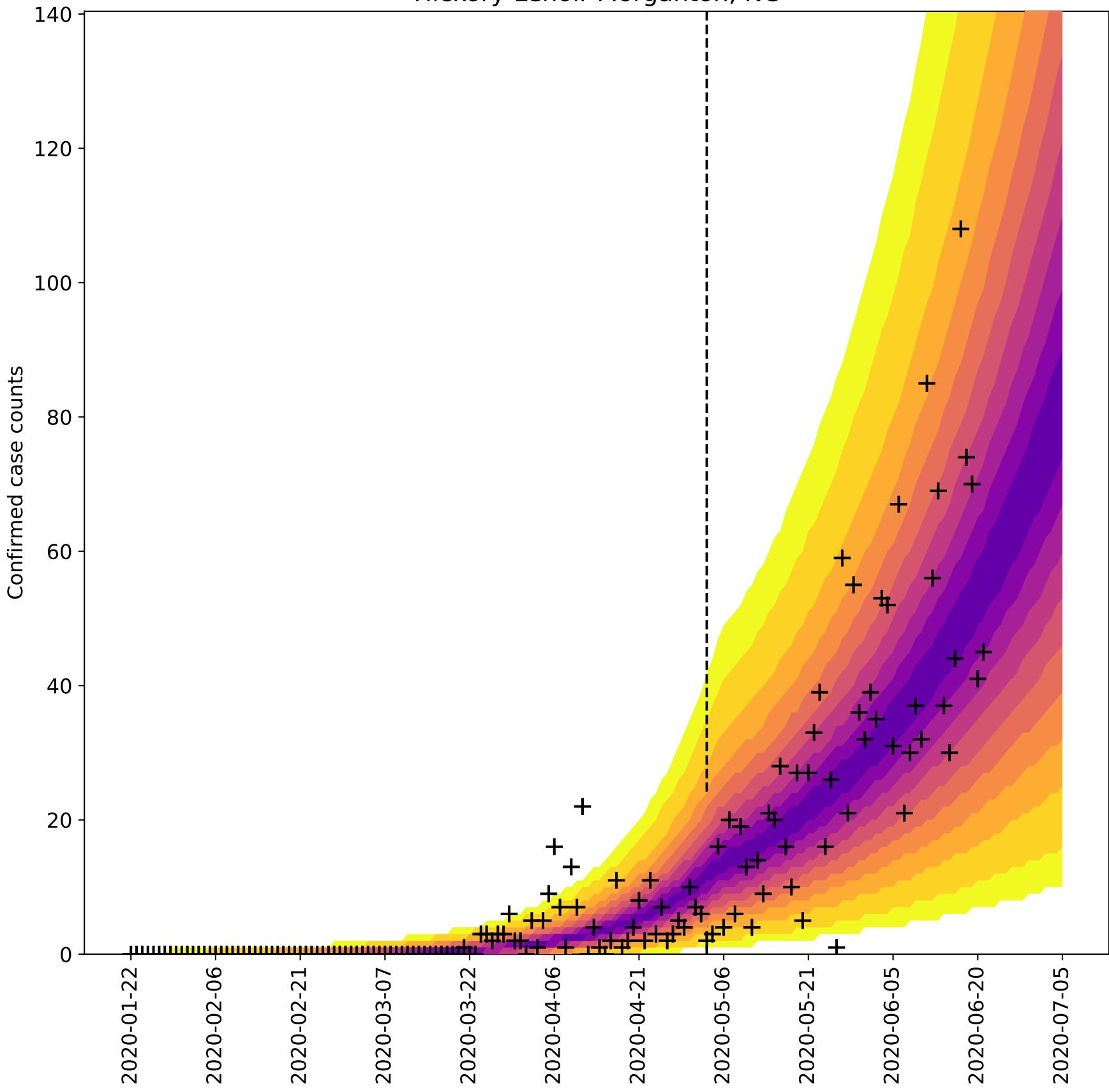
Naples-Marco Island, FL



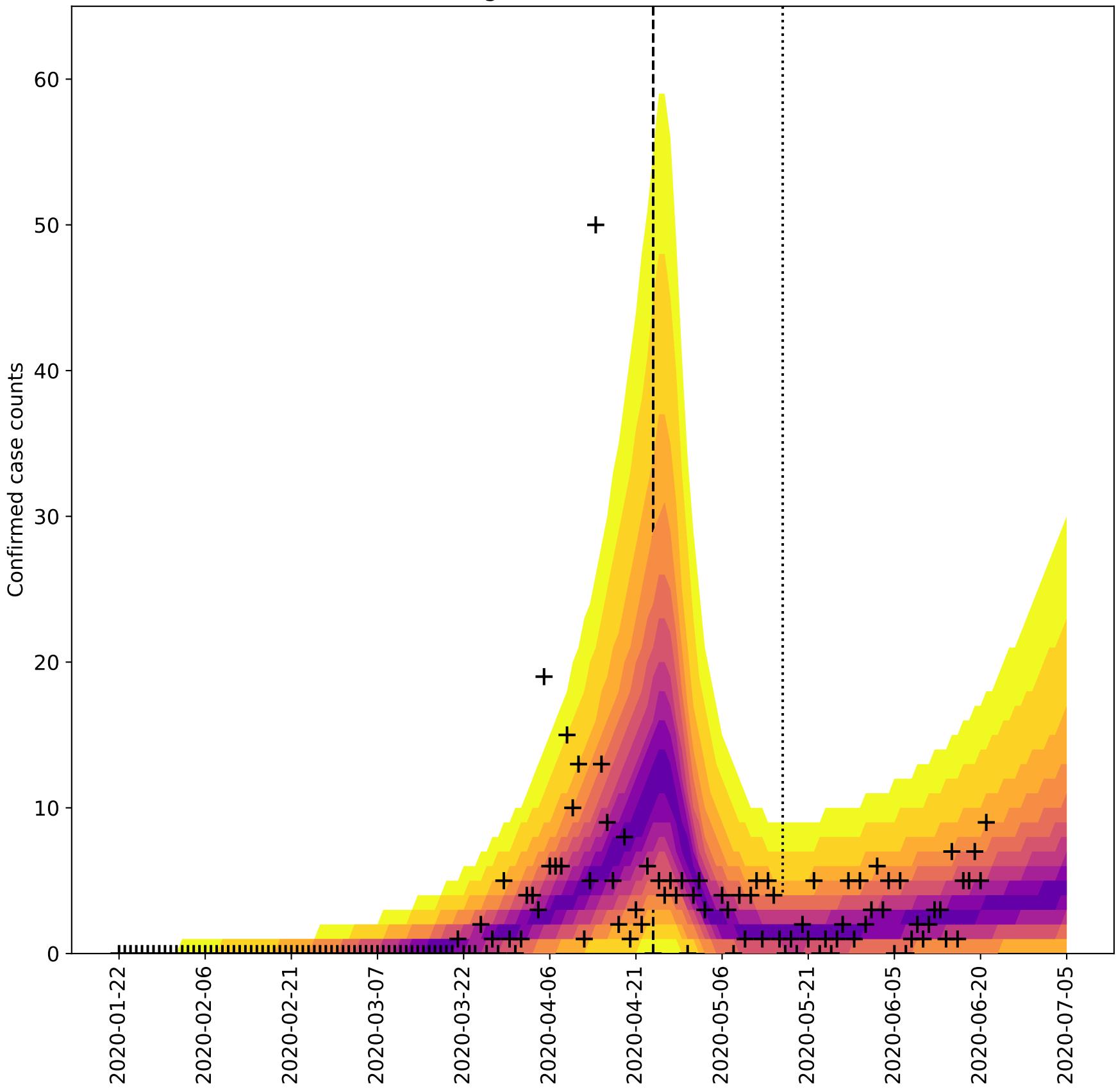
Ann Arbor, MI



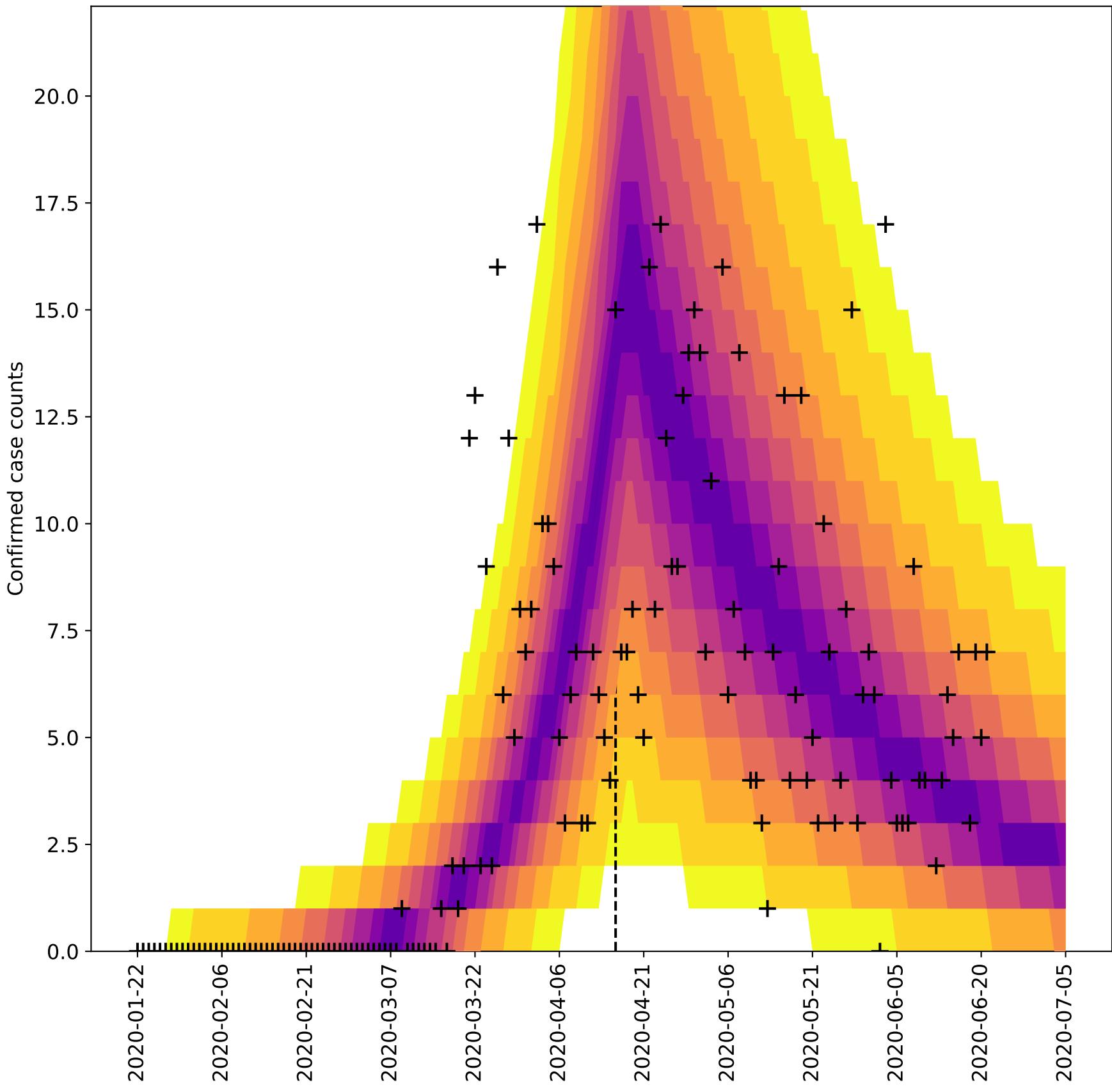
Hickory-Lenoir-Morganton, NC



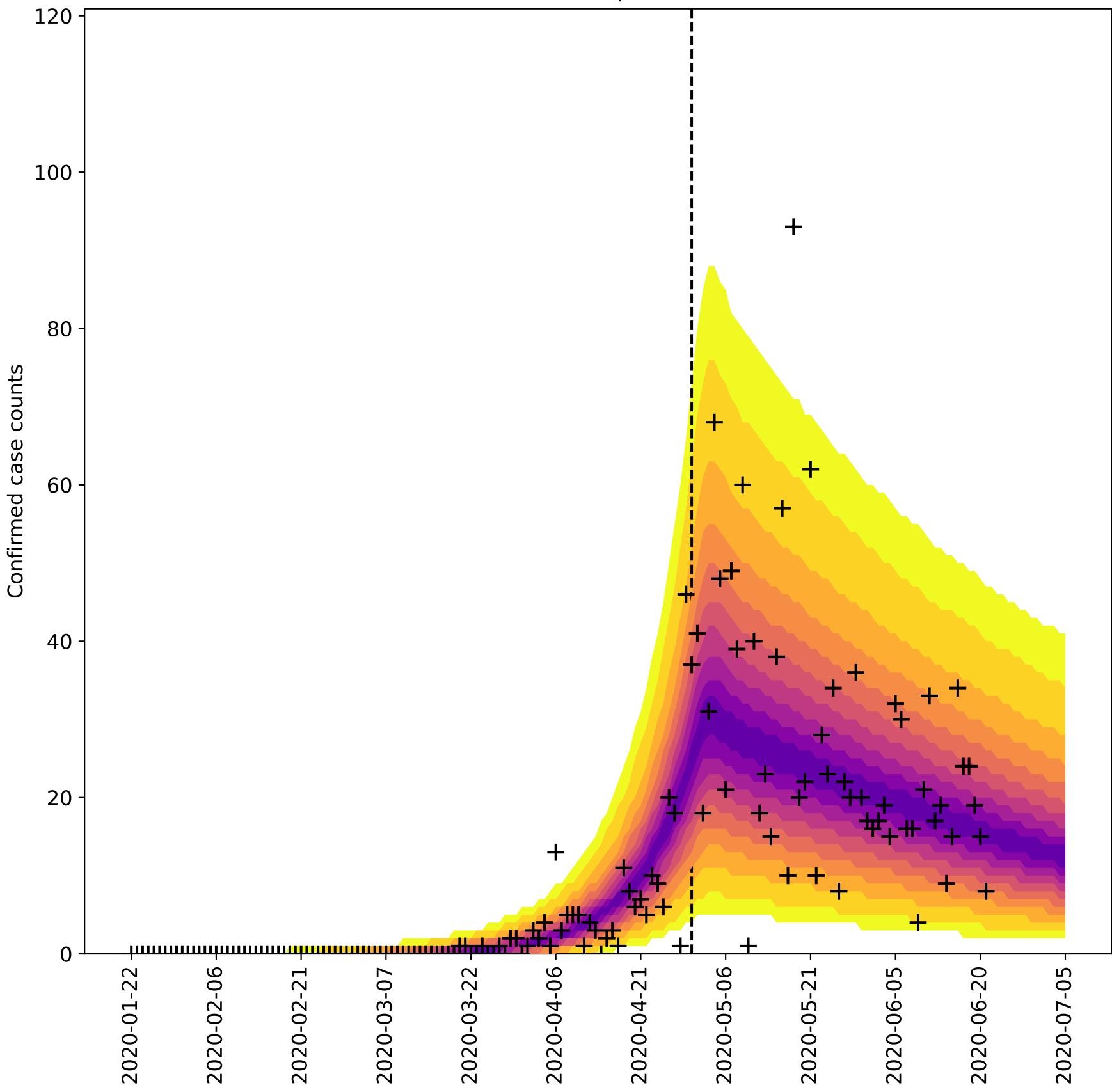
Huntington-Ashland, WV-KY-OH



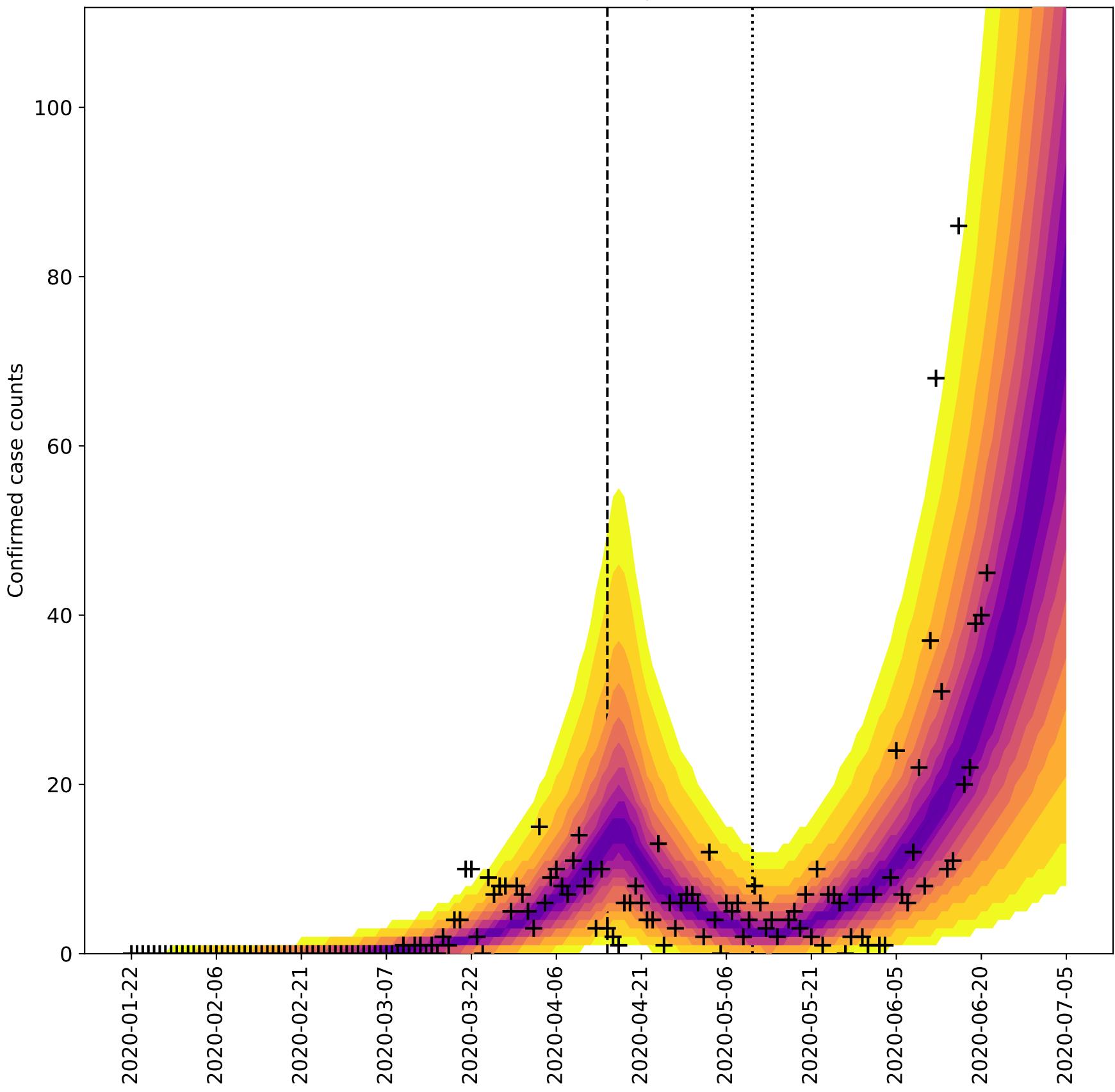
Fort Collins, CO



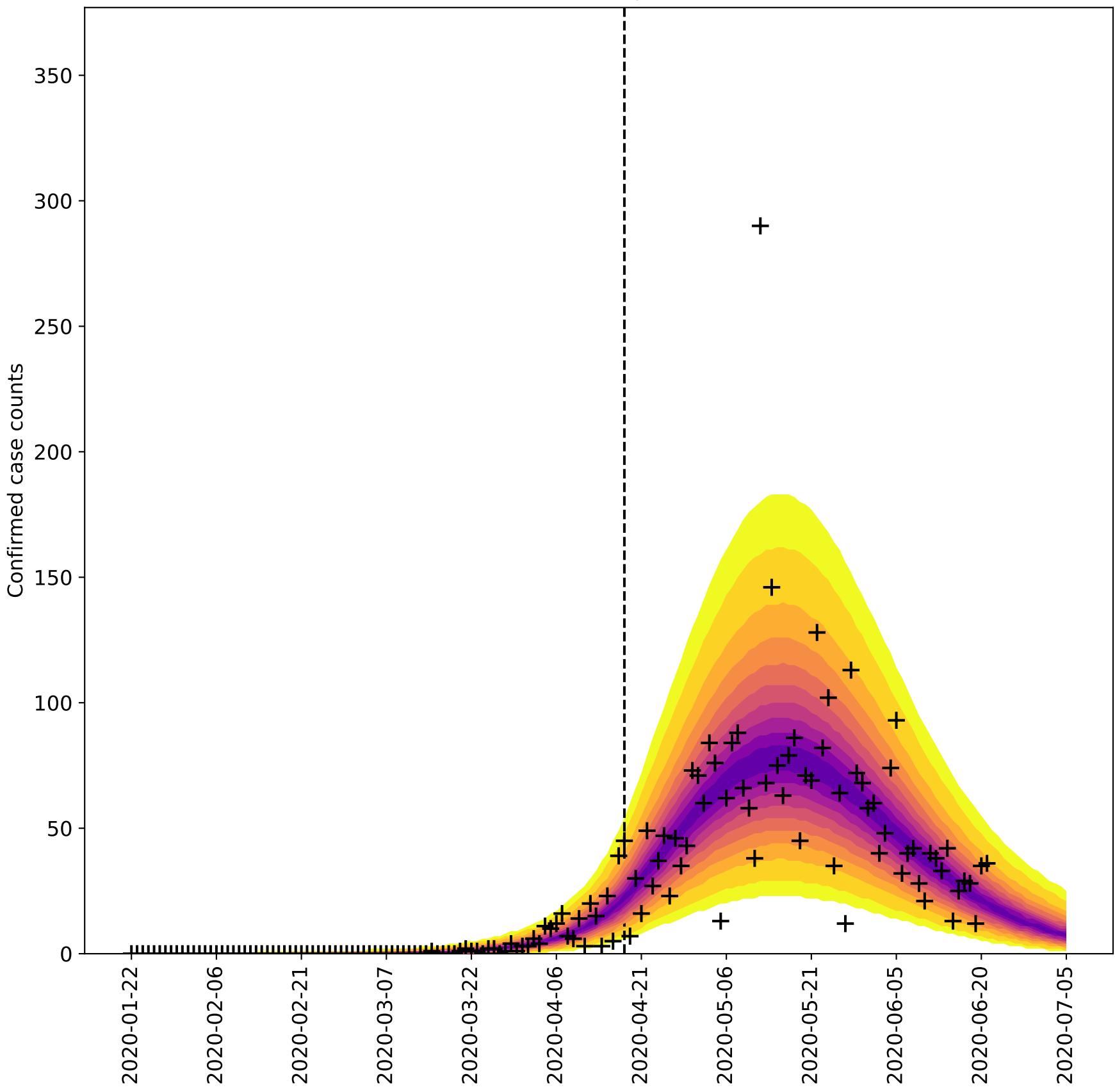
Lincoln, NE



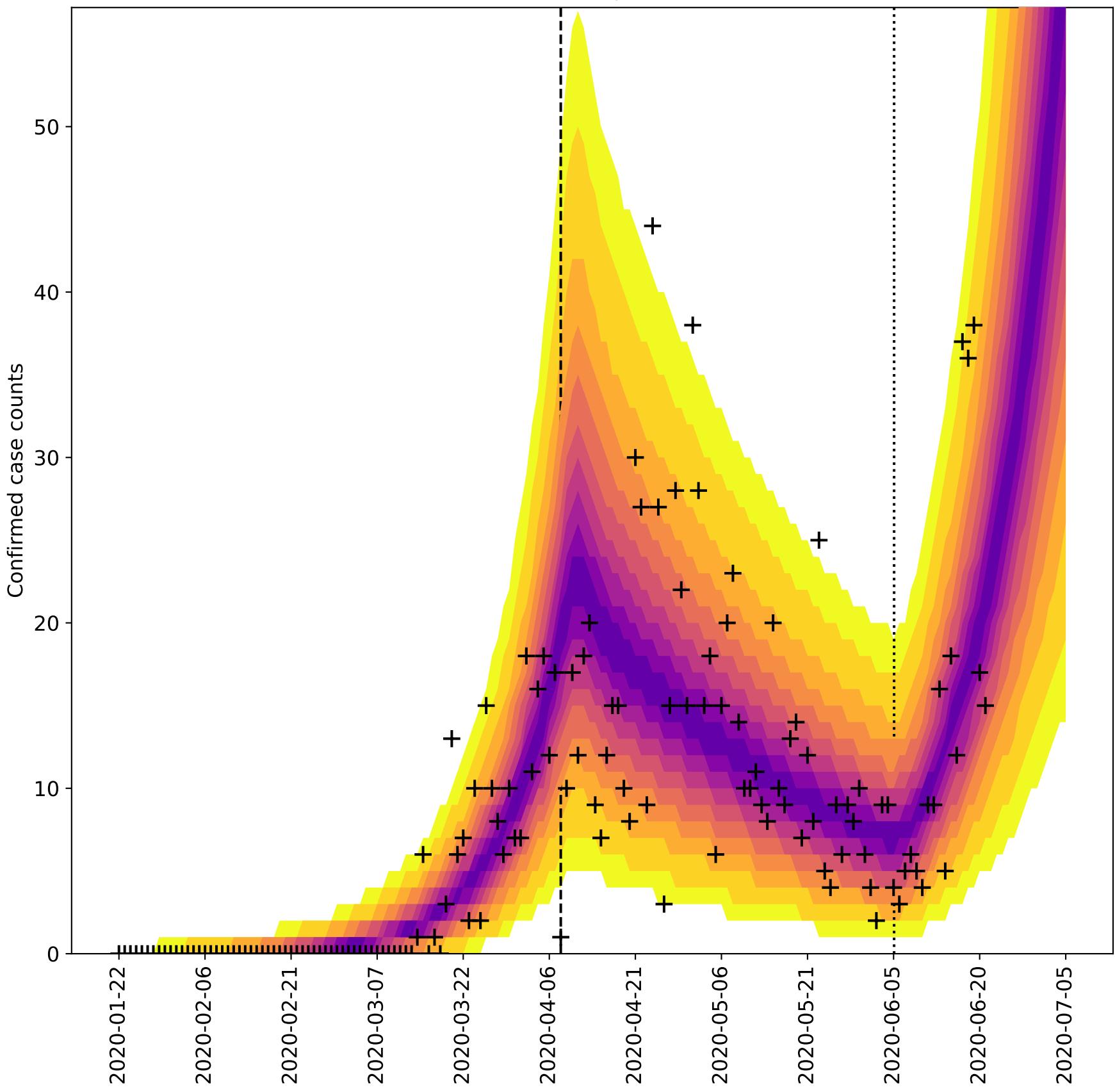
Gainesville, FL



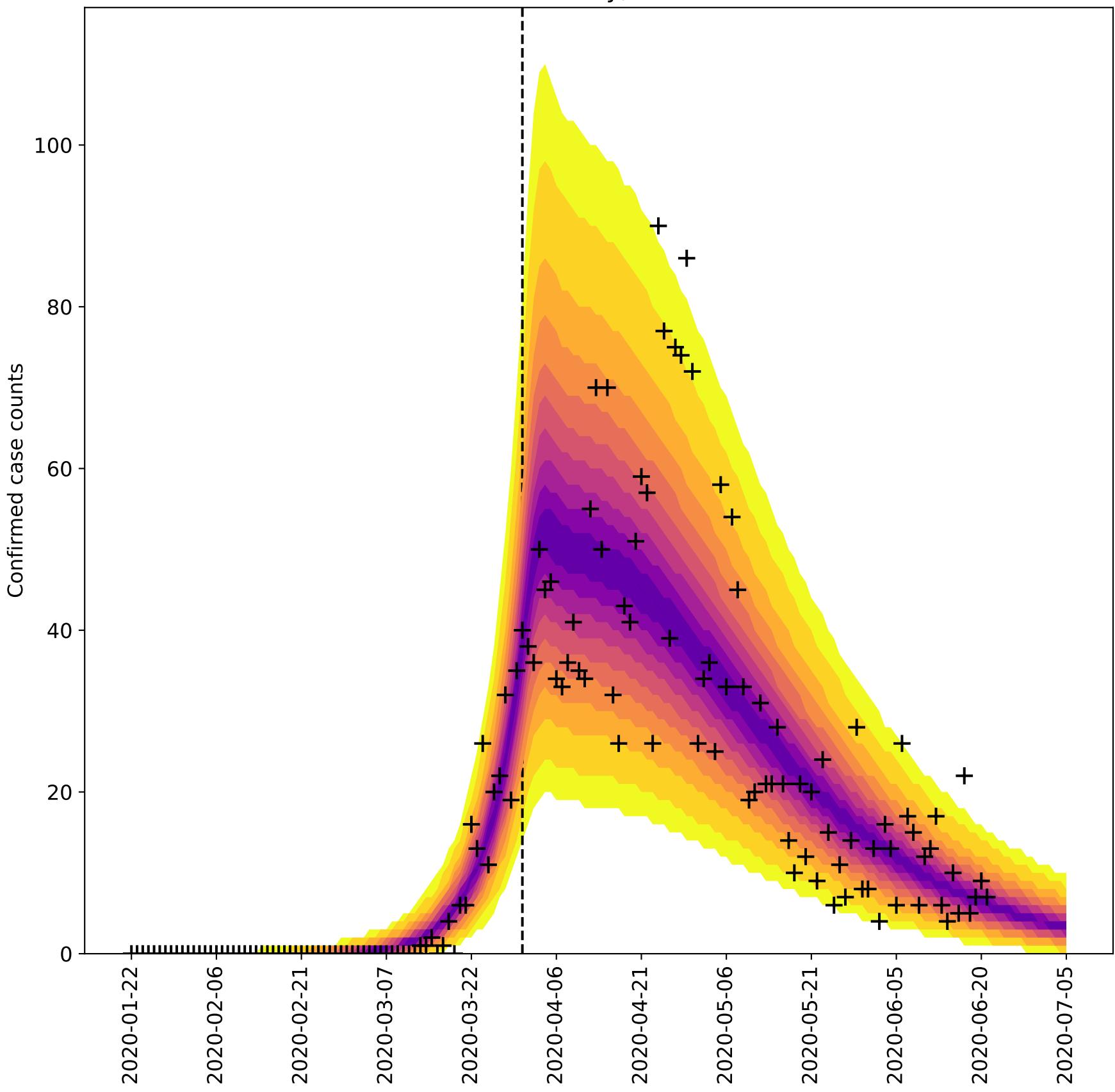
Rockford, IL



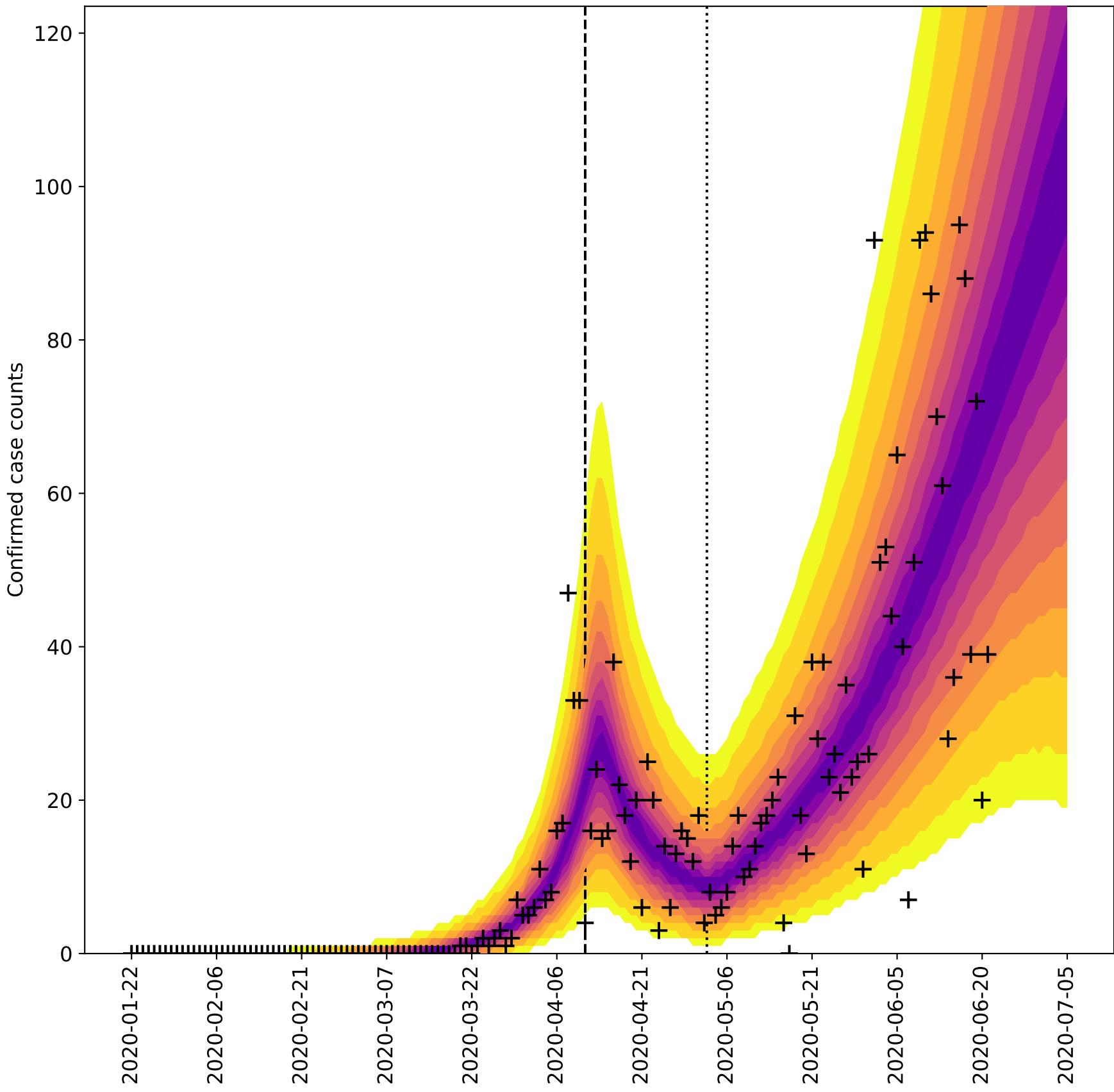
Boulder, CO



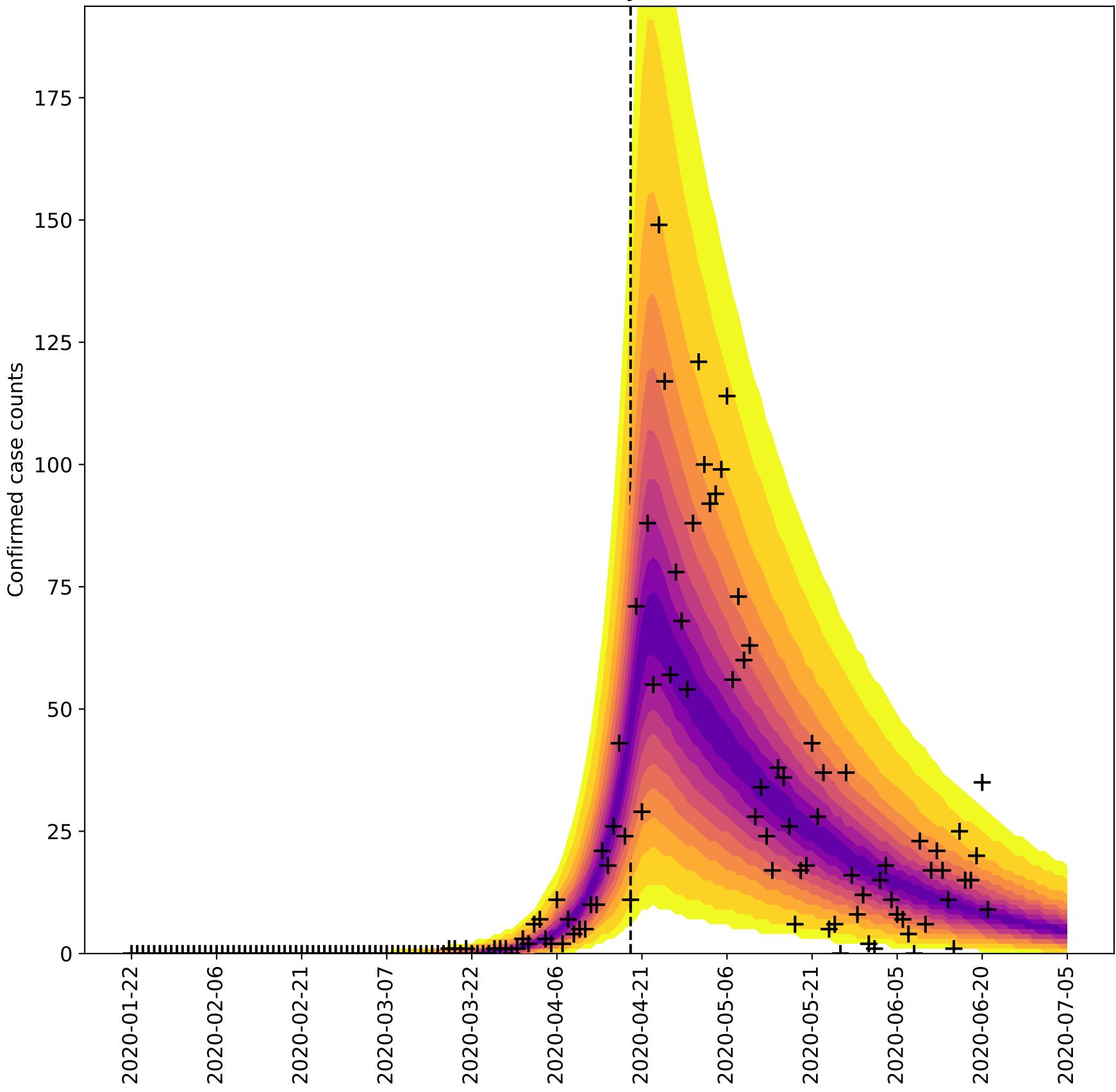
Greeley, CO



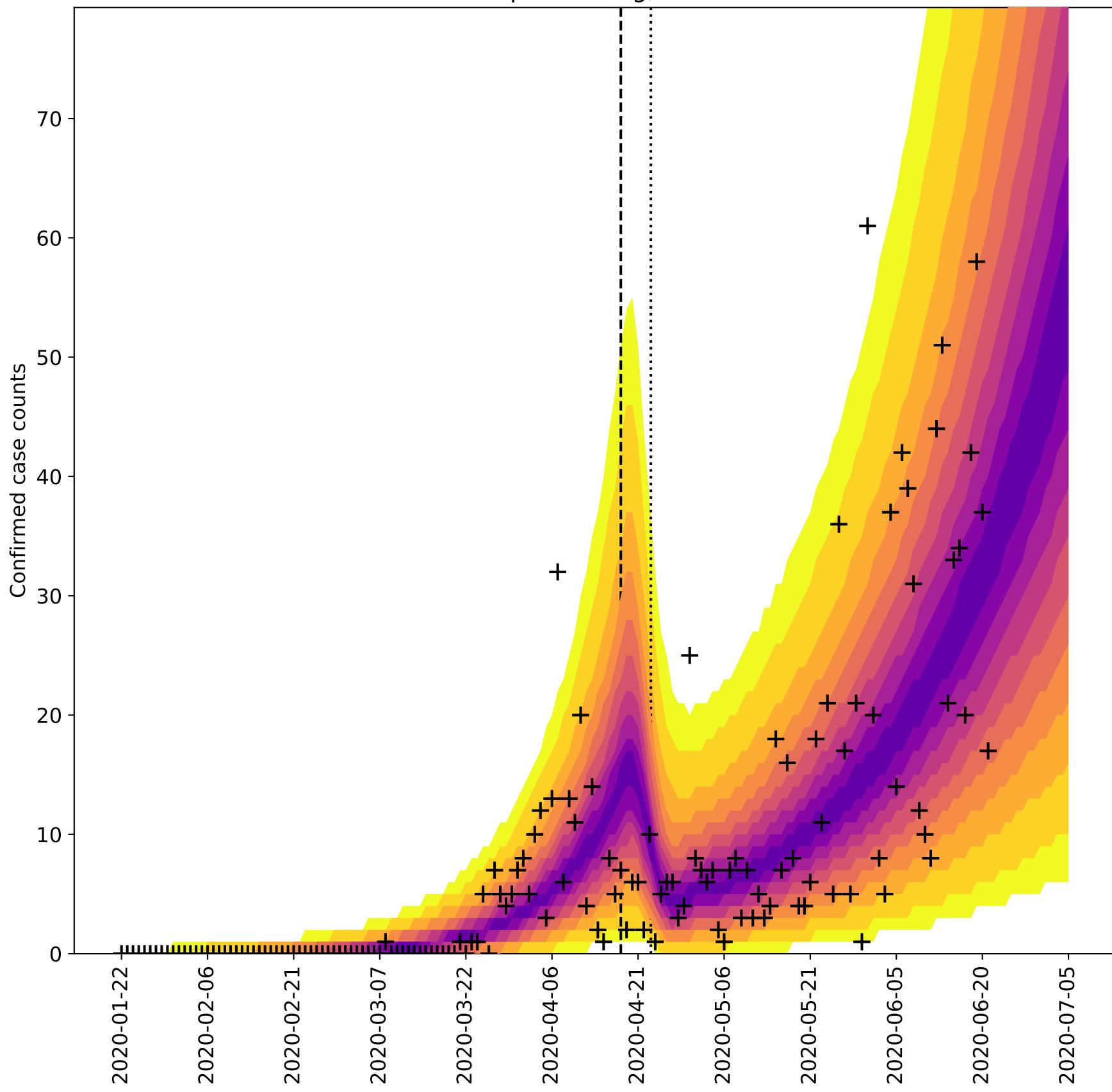
Columbus, GA-AL



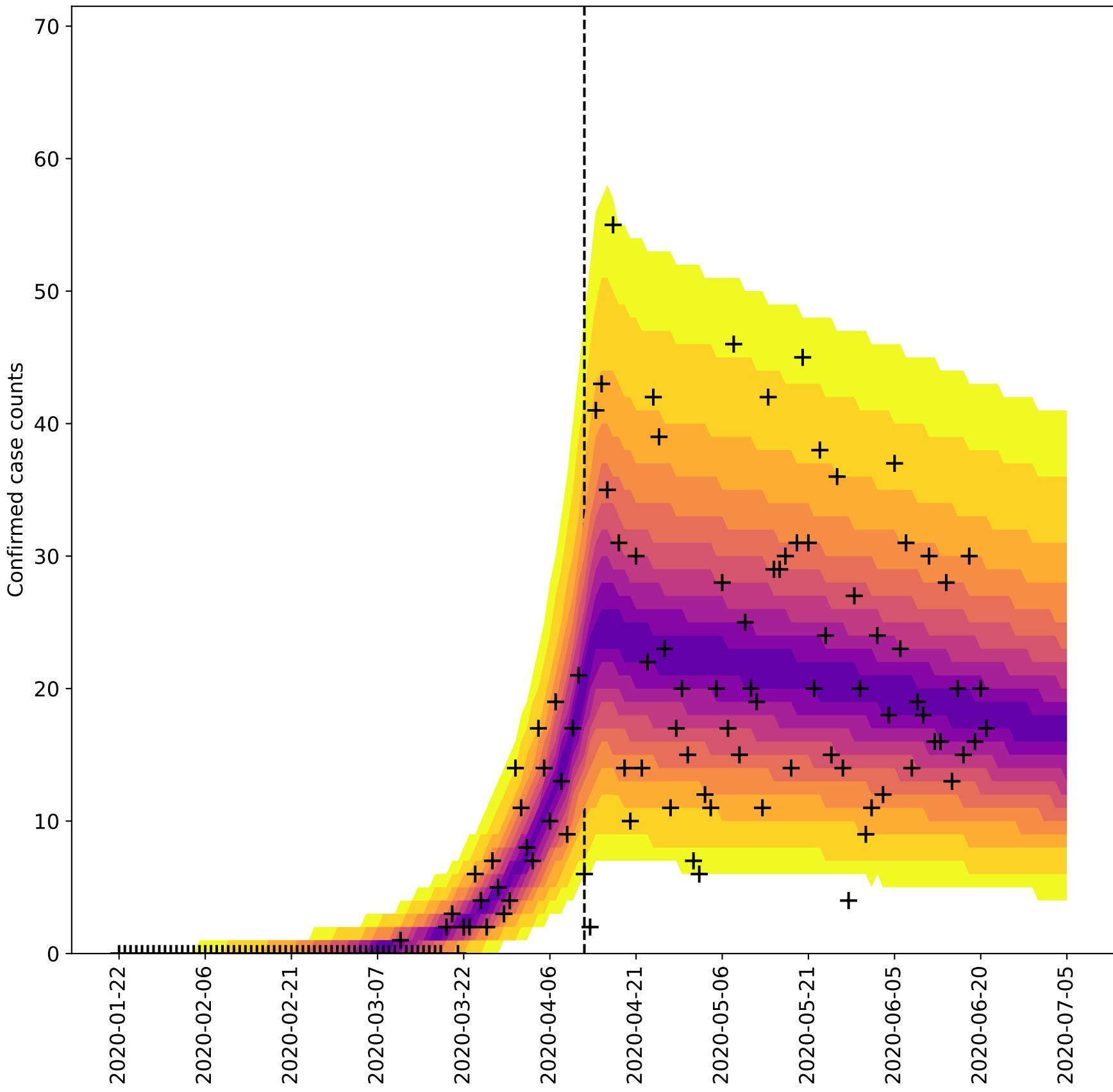
Green Bay, WI



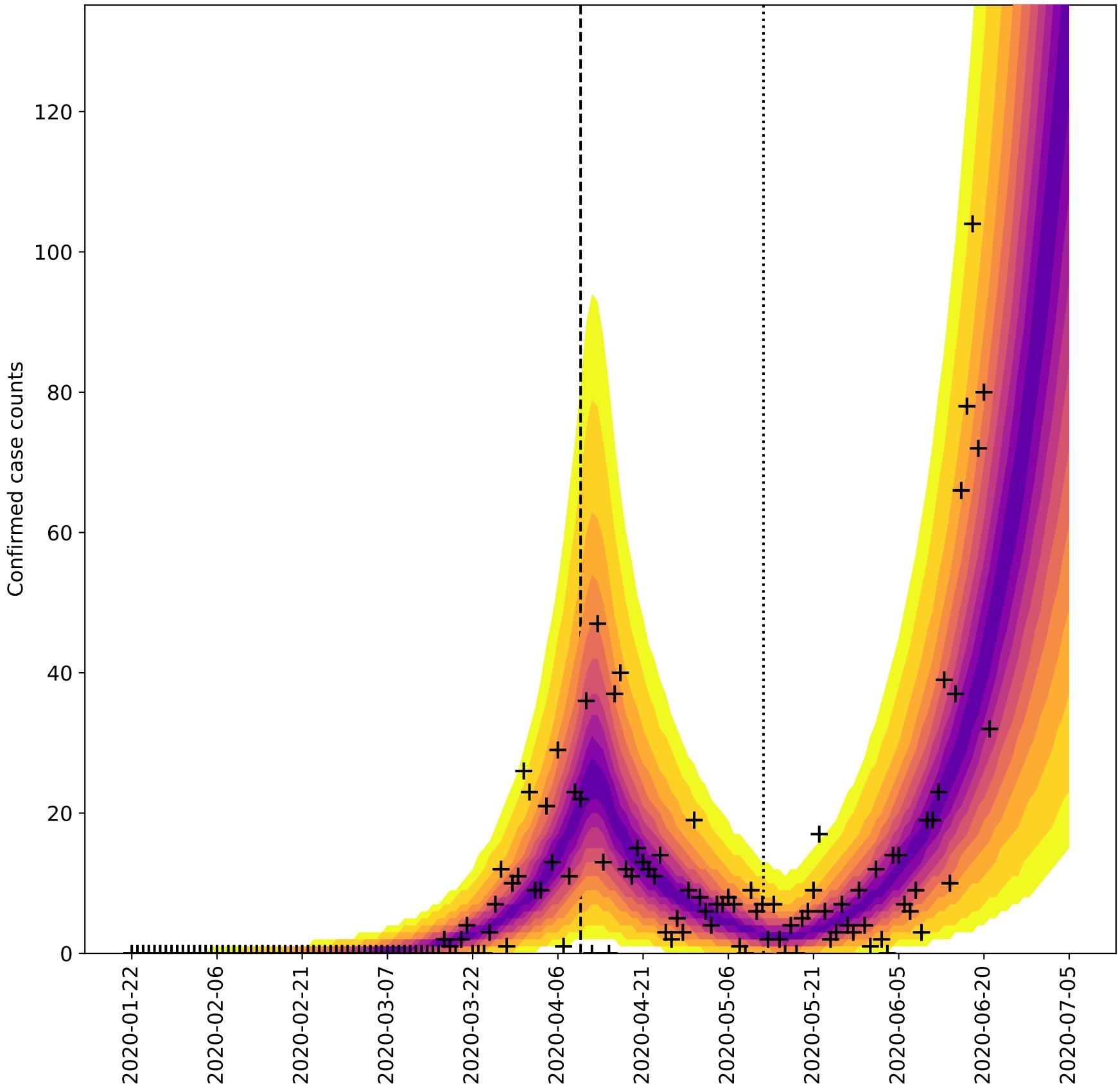
Spartanburg, SC



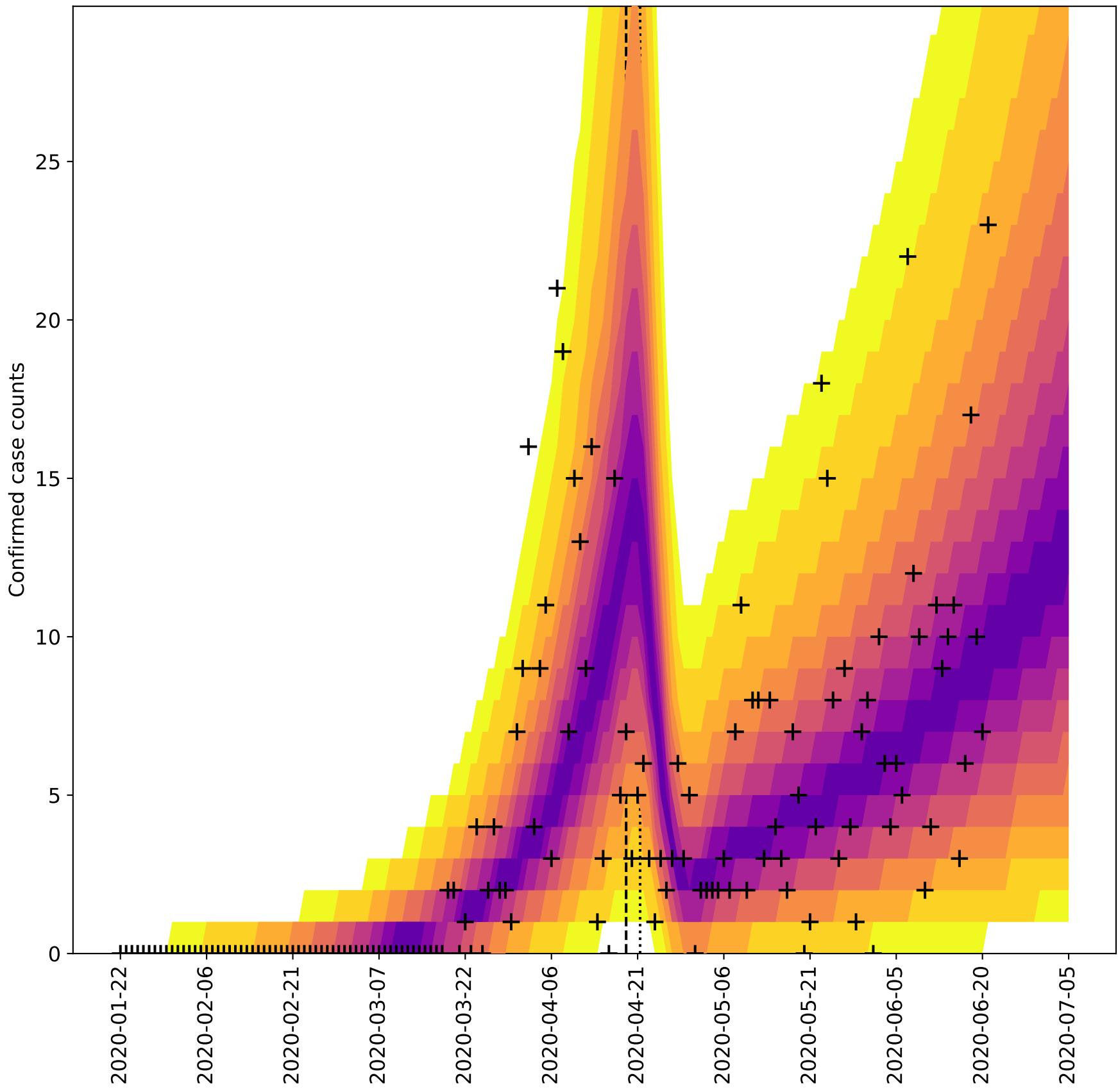
South Bend-Mishawaka, IN-MI



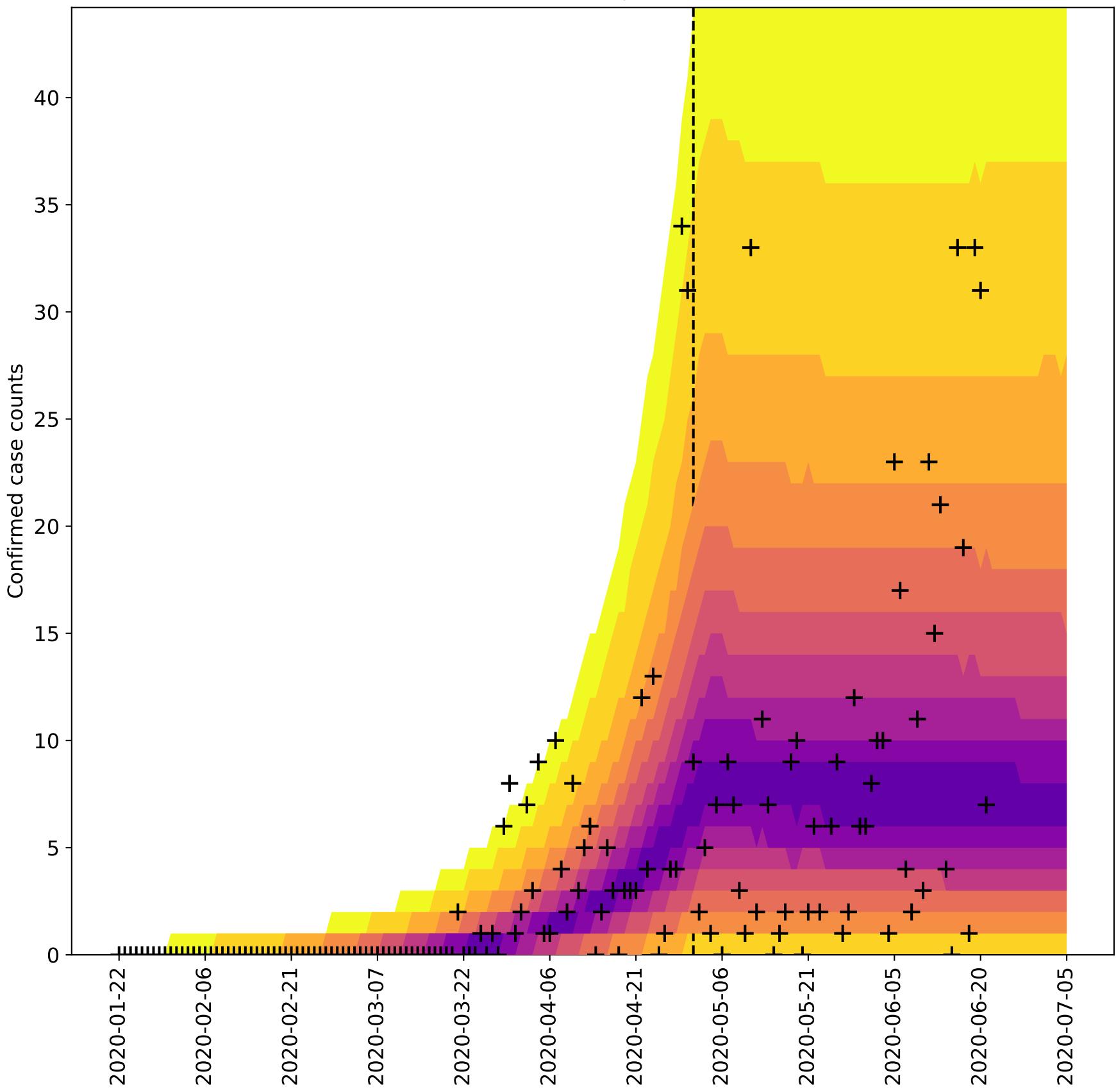
Lubbock, TX



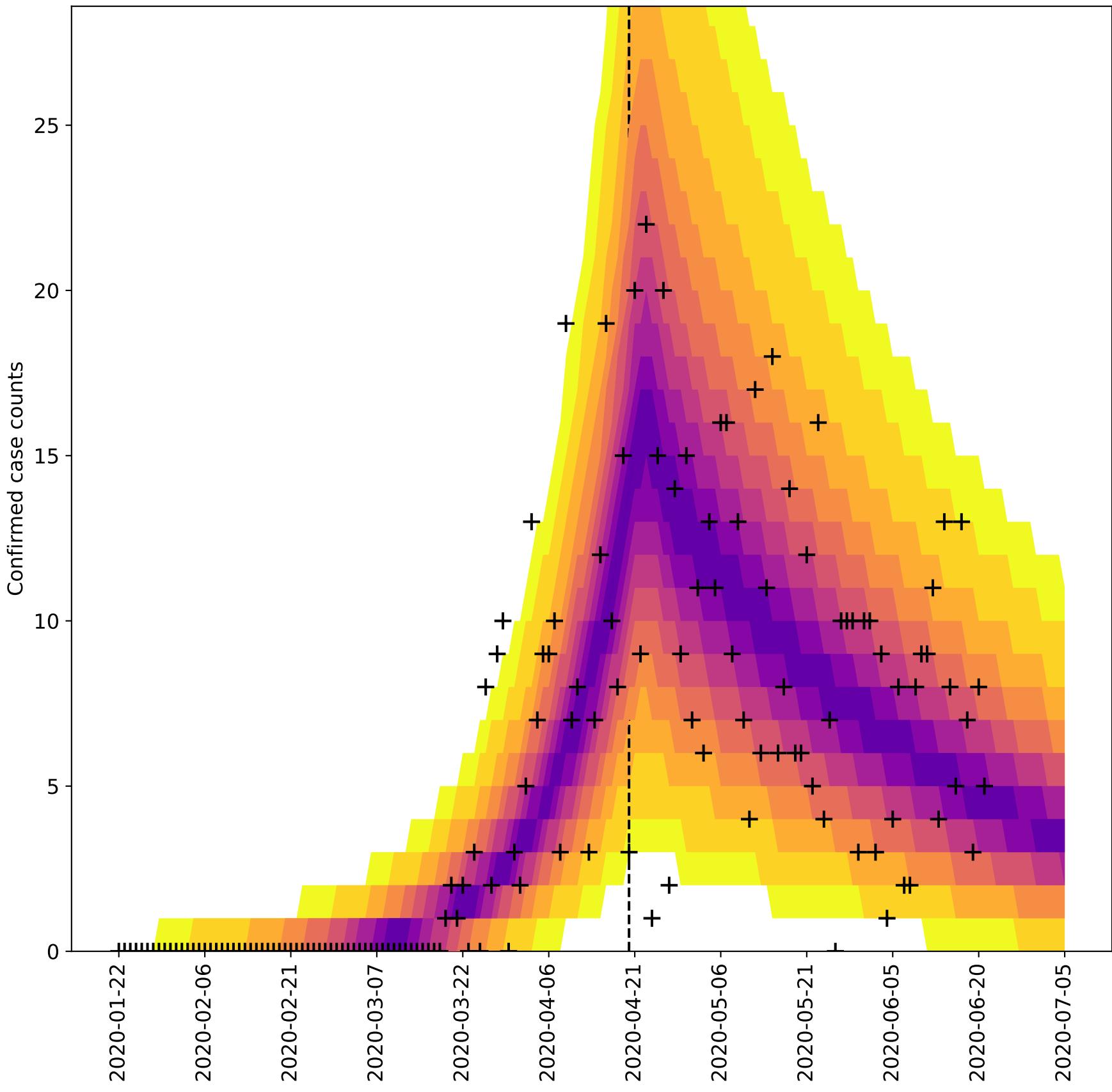
Clarksville, TN-KY



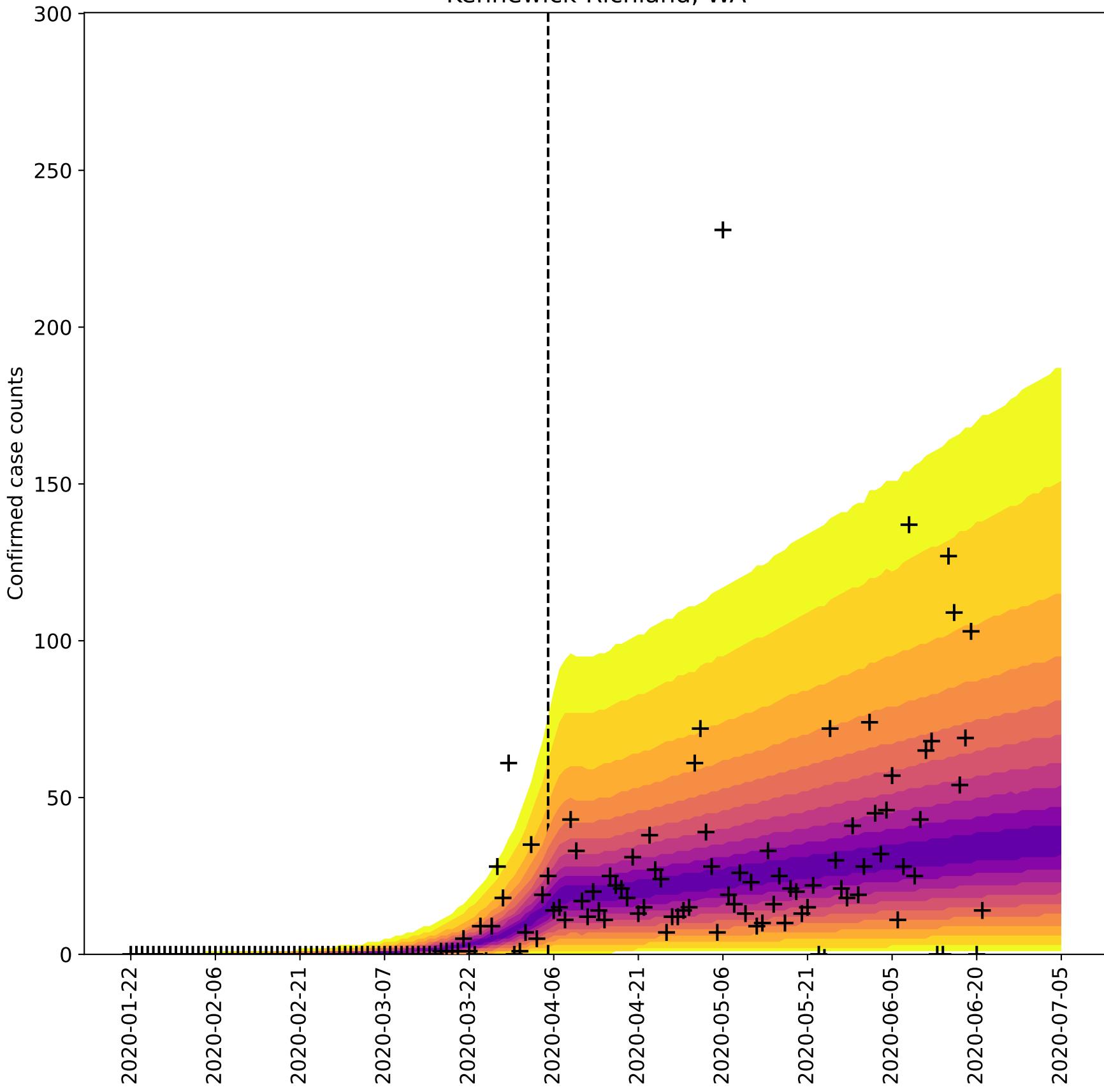
Roanoke, VA



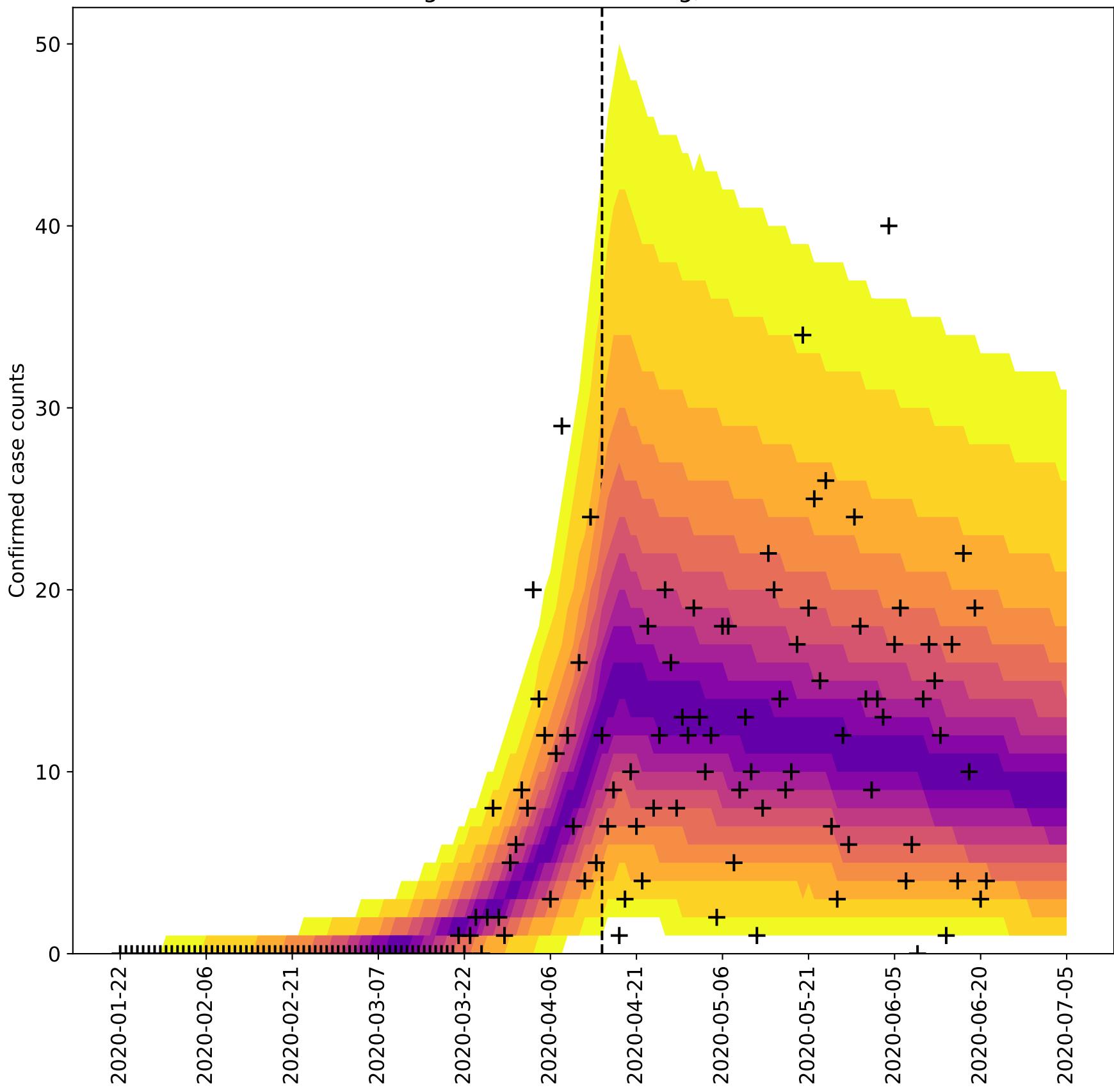
Evansville, IN-KY



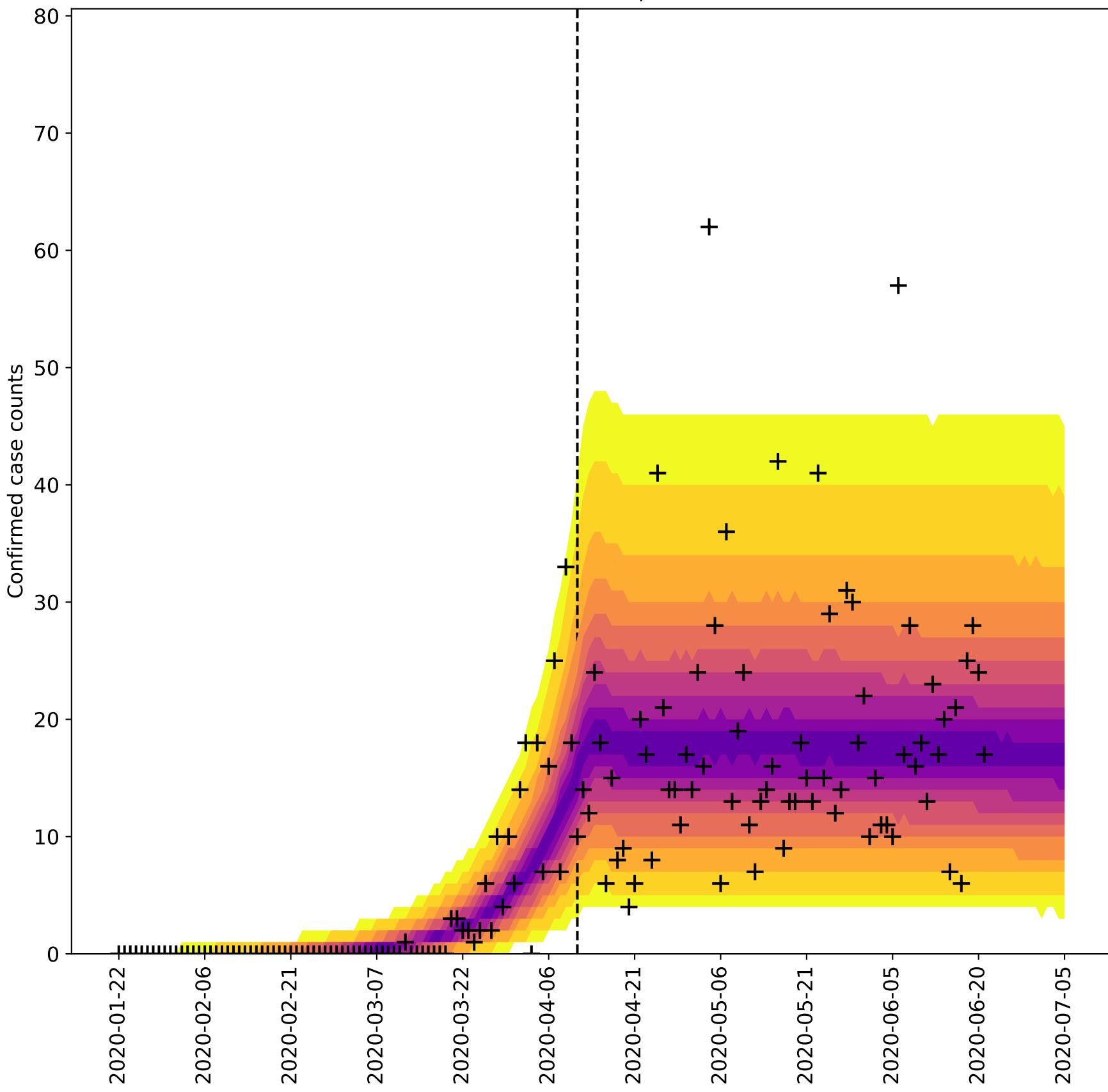
Kennewick-Richland, WA



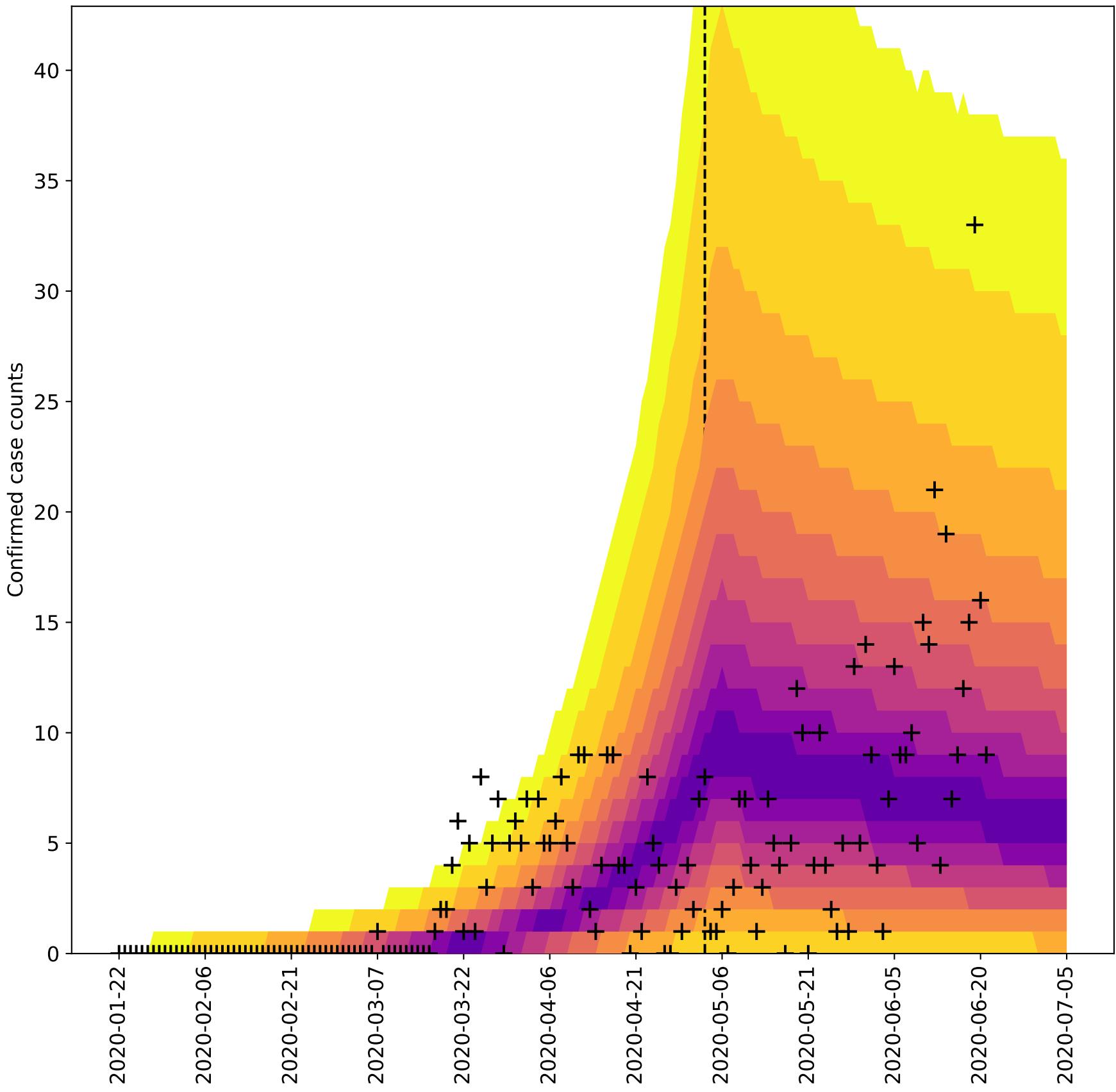
Hagerstown-Martinsburg, MD-WV



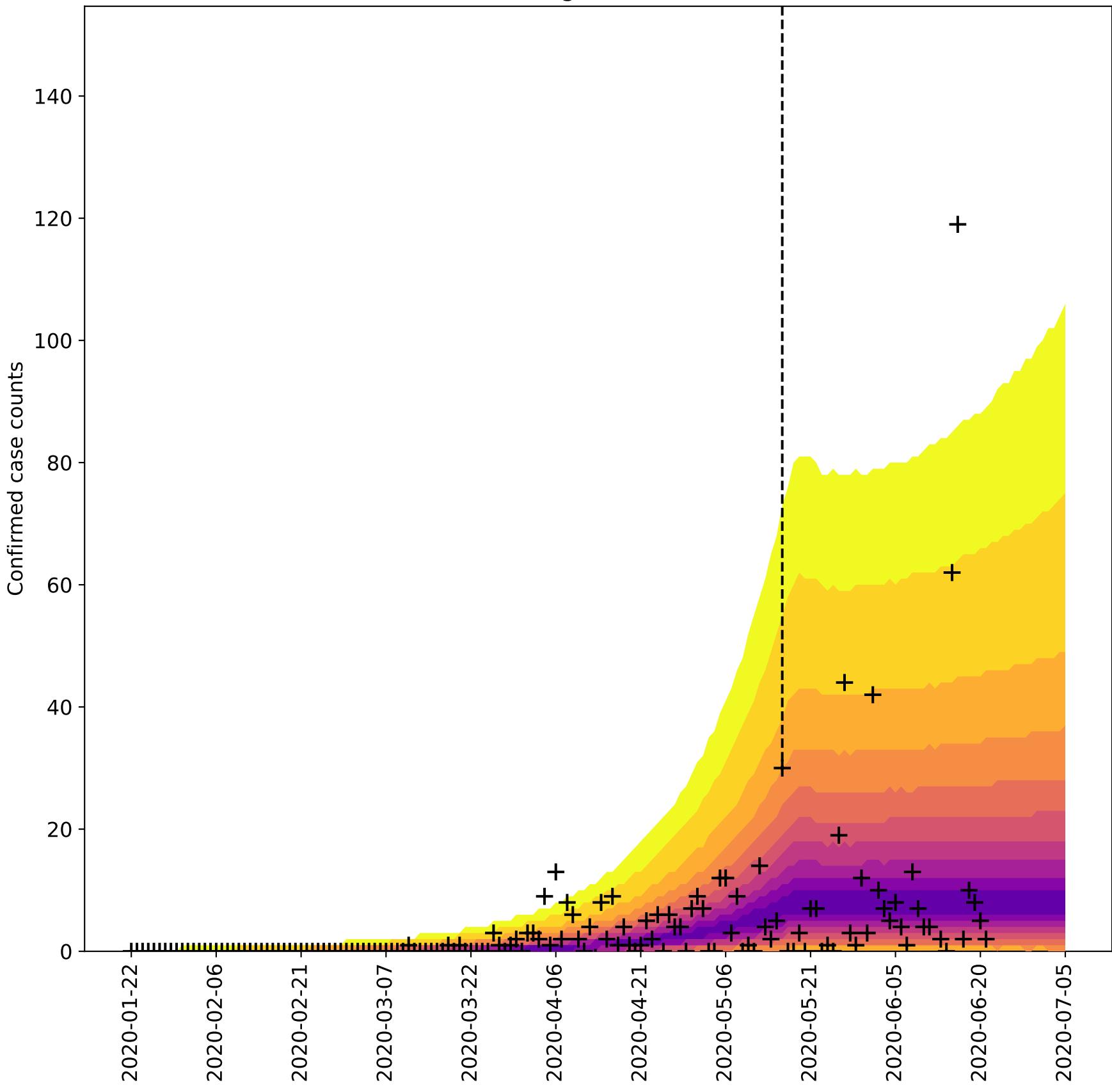
Utica-Rome, NY



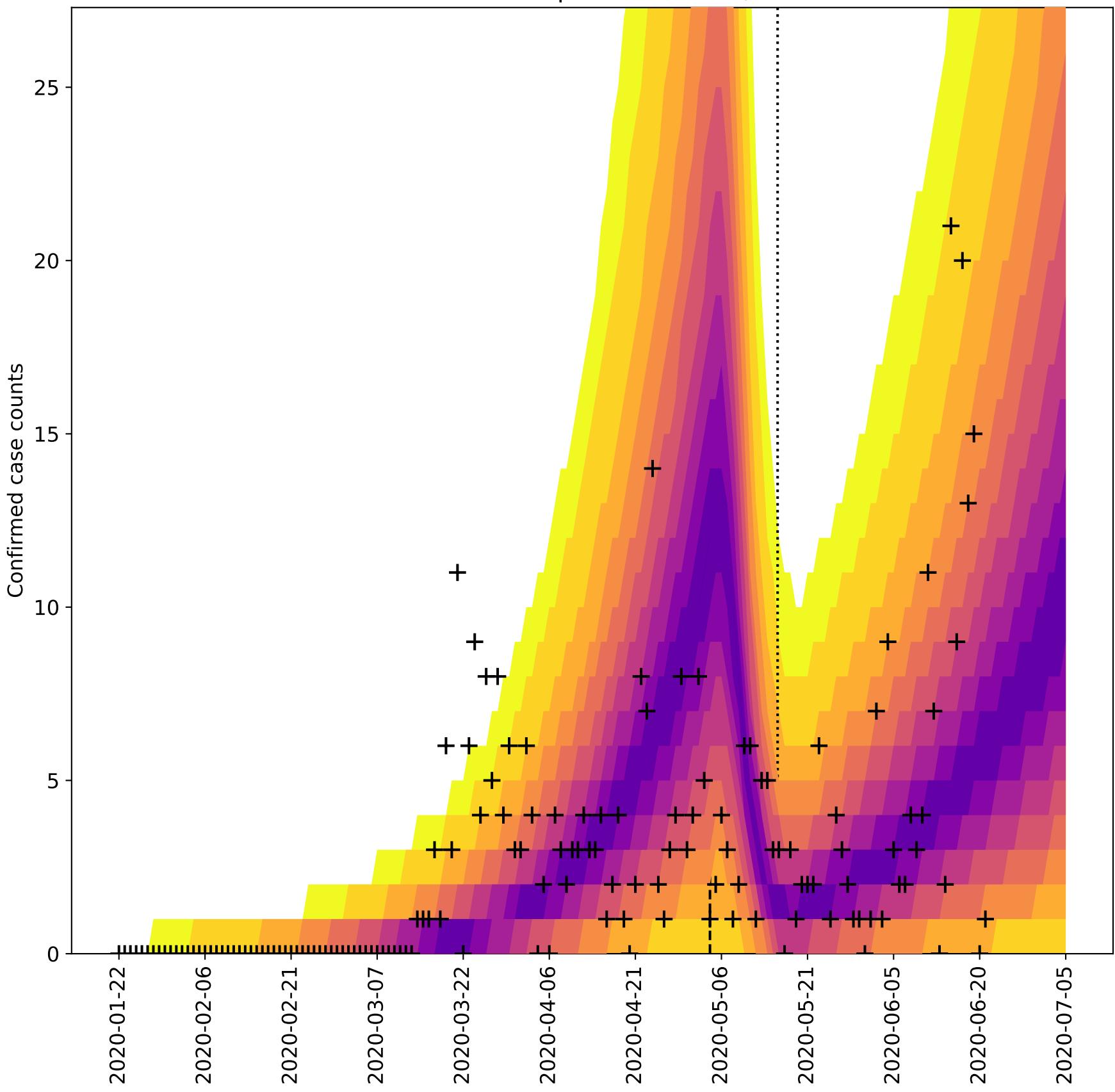
Crestview-Fort Walton Beach-Destin, FL



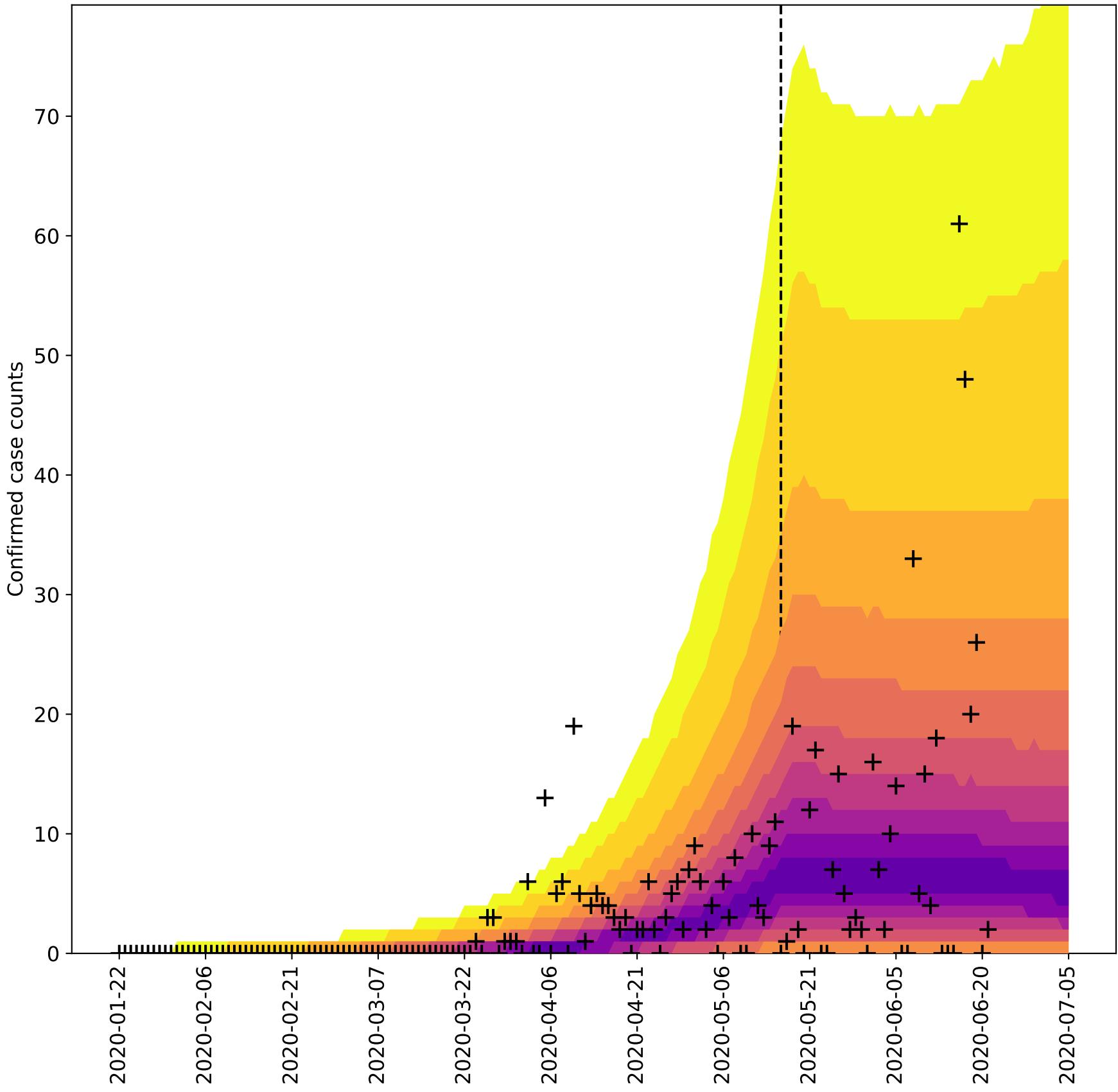
Longview, TX



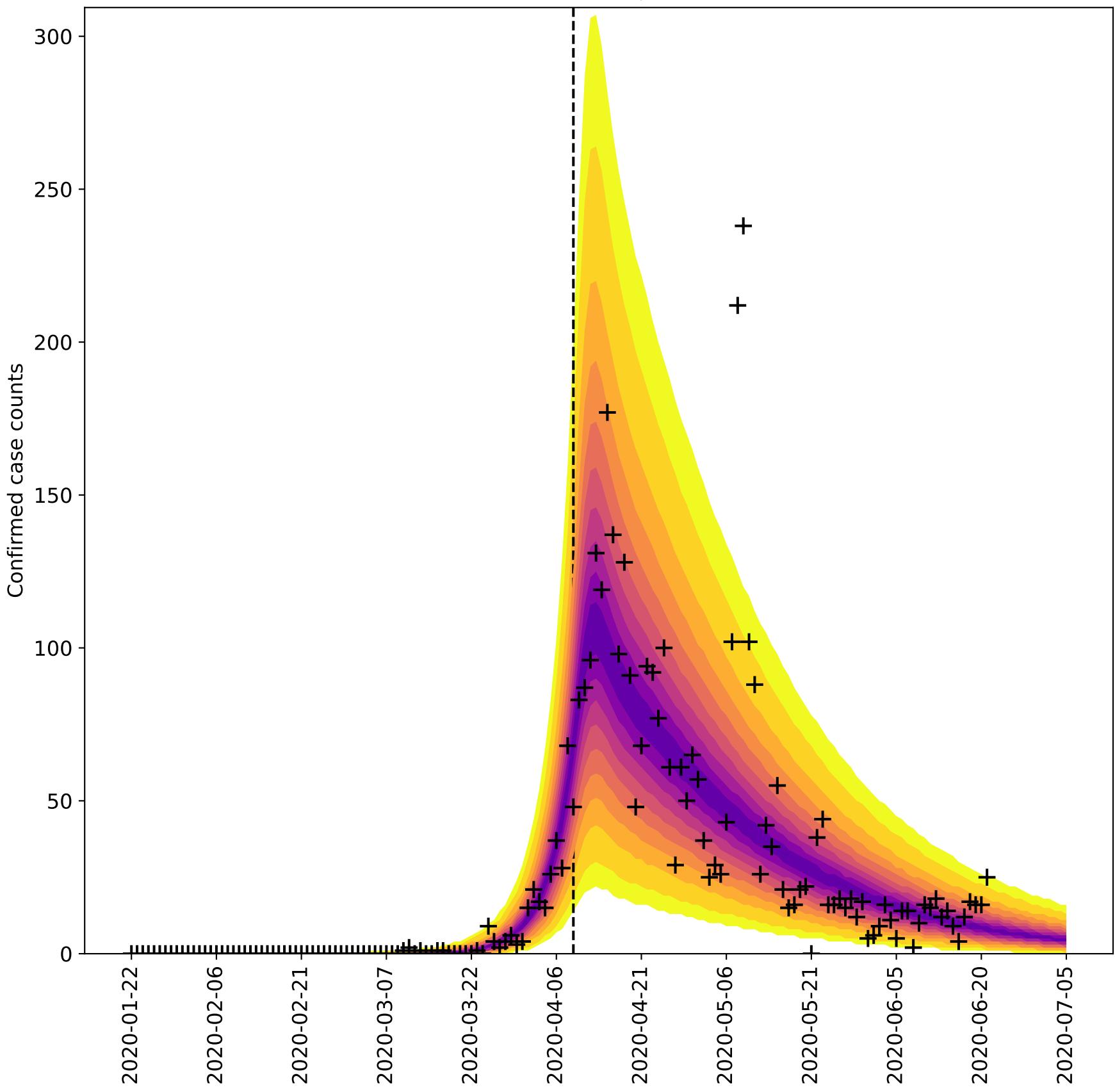
San Luis Obispo-Paso Robles, CA



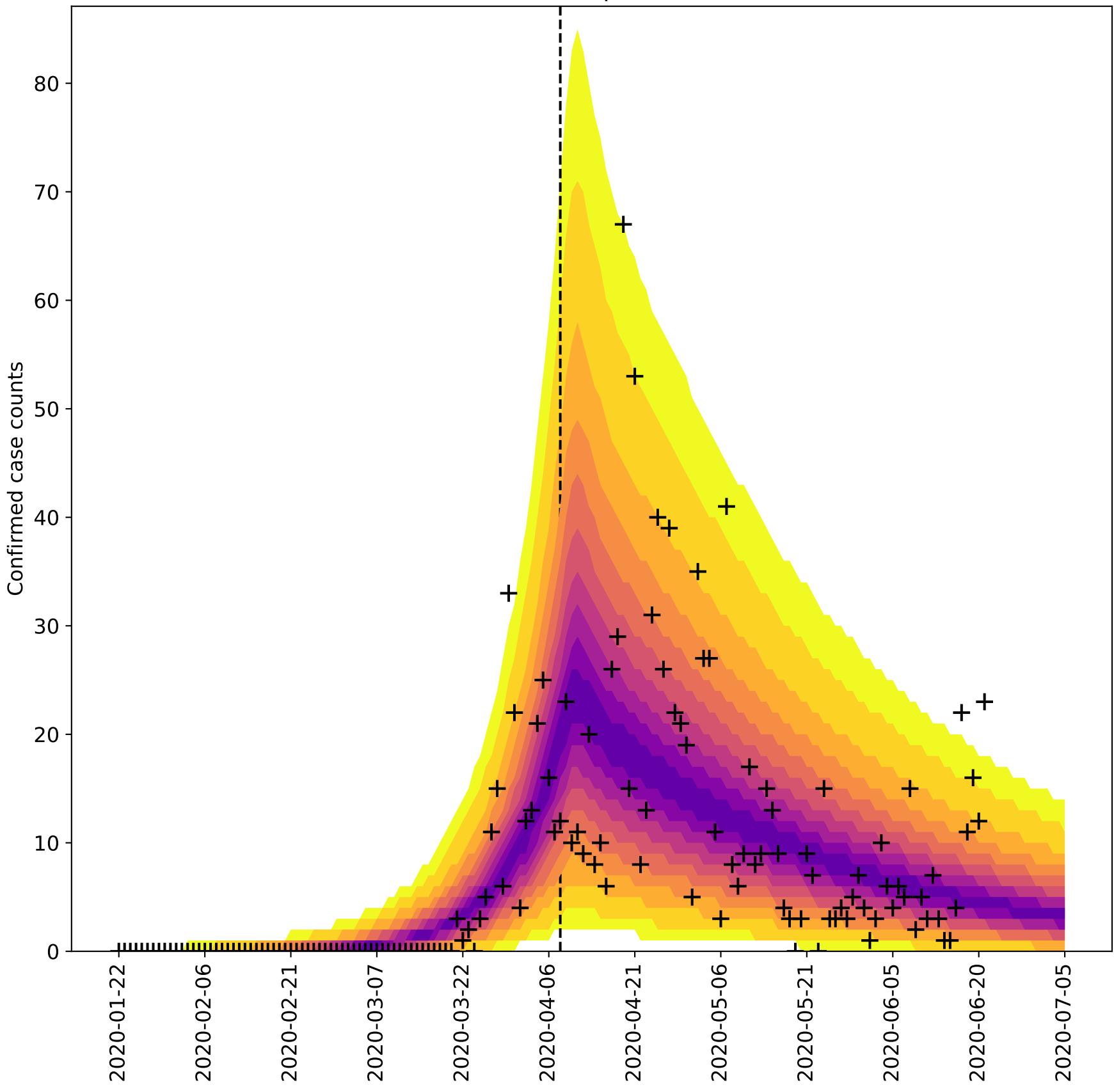
Merced, CA



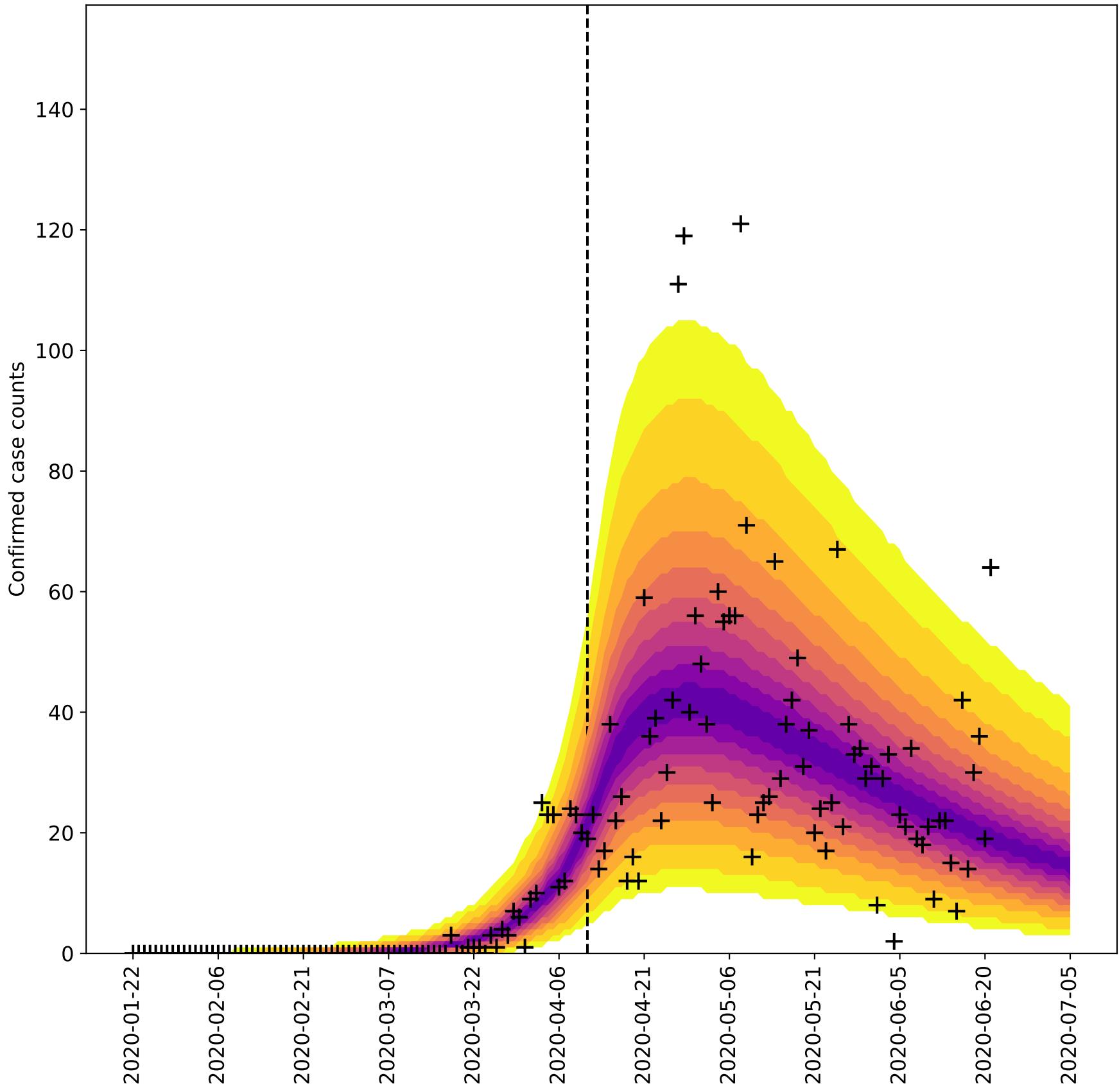
Sioux Falls, SD



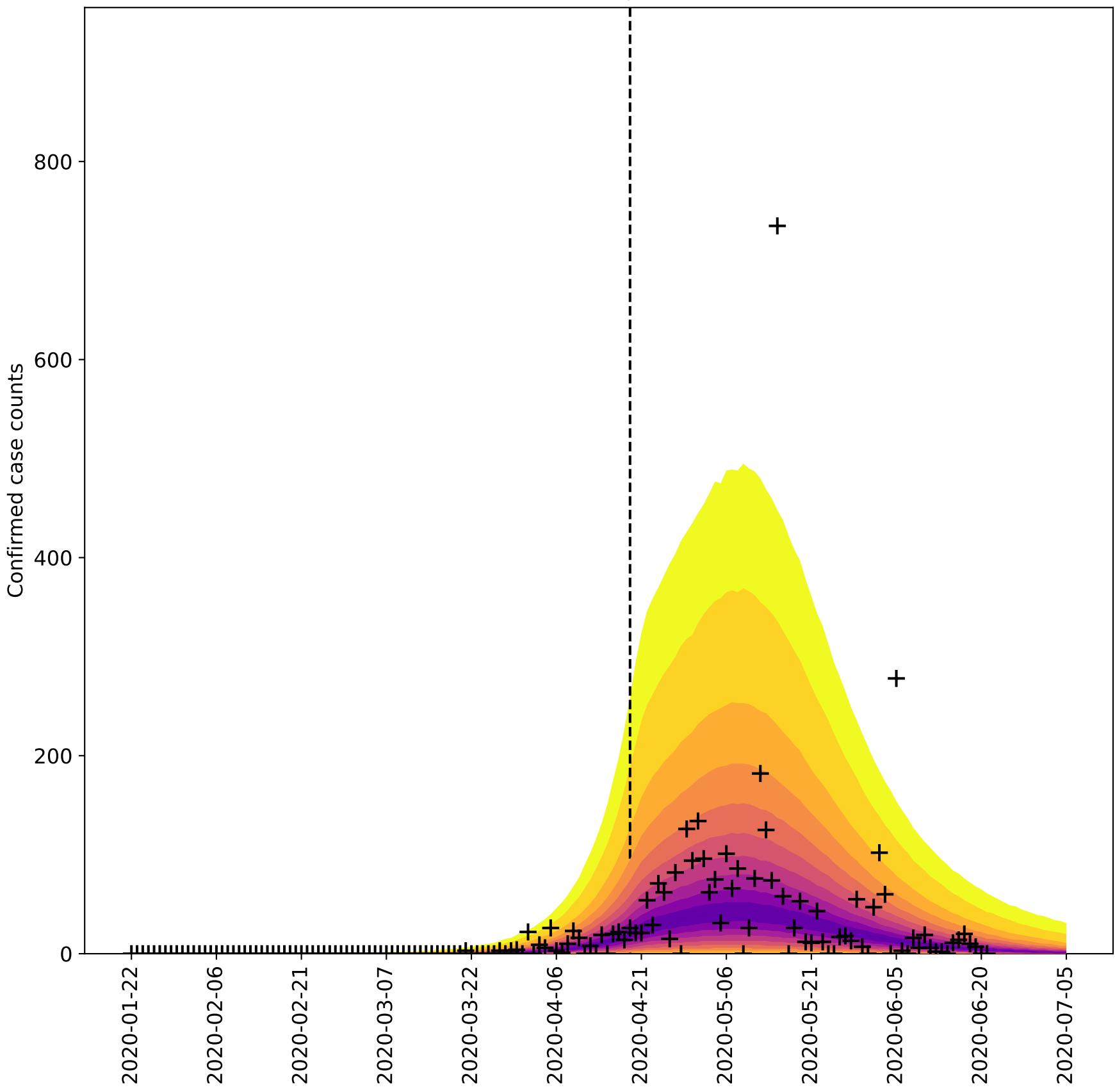
Cedar Rapids, IA



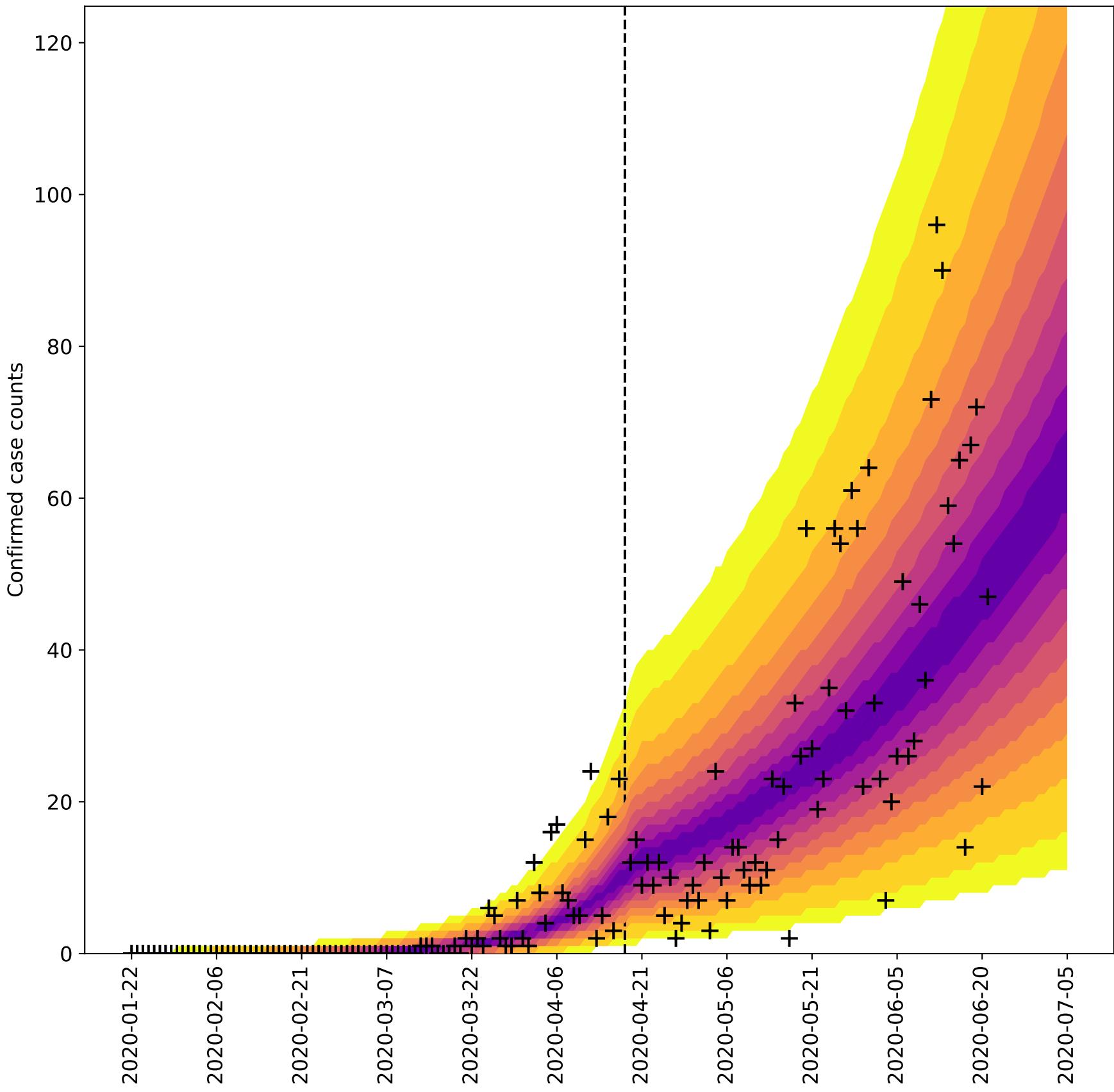
Atlantic City-Hammonton, NJ



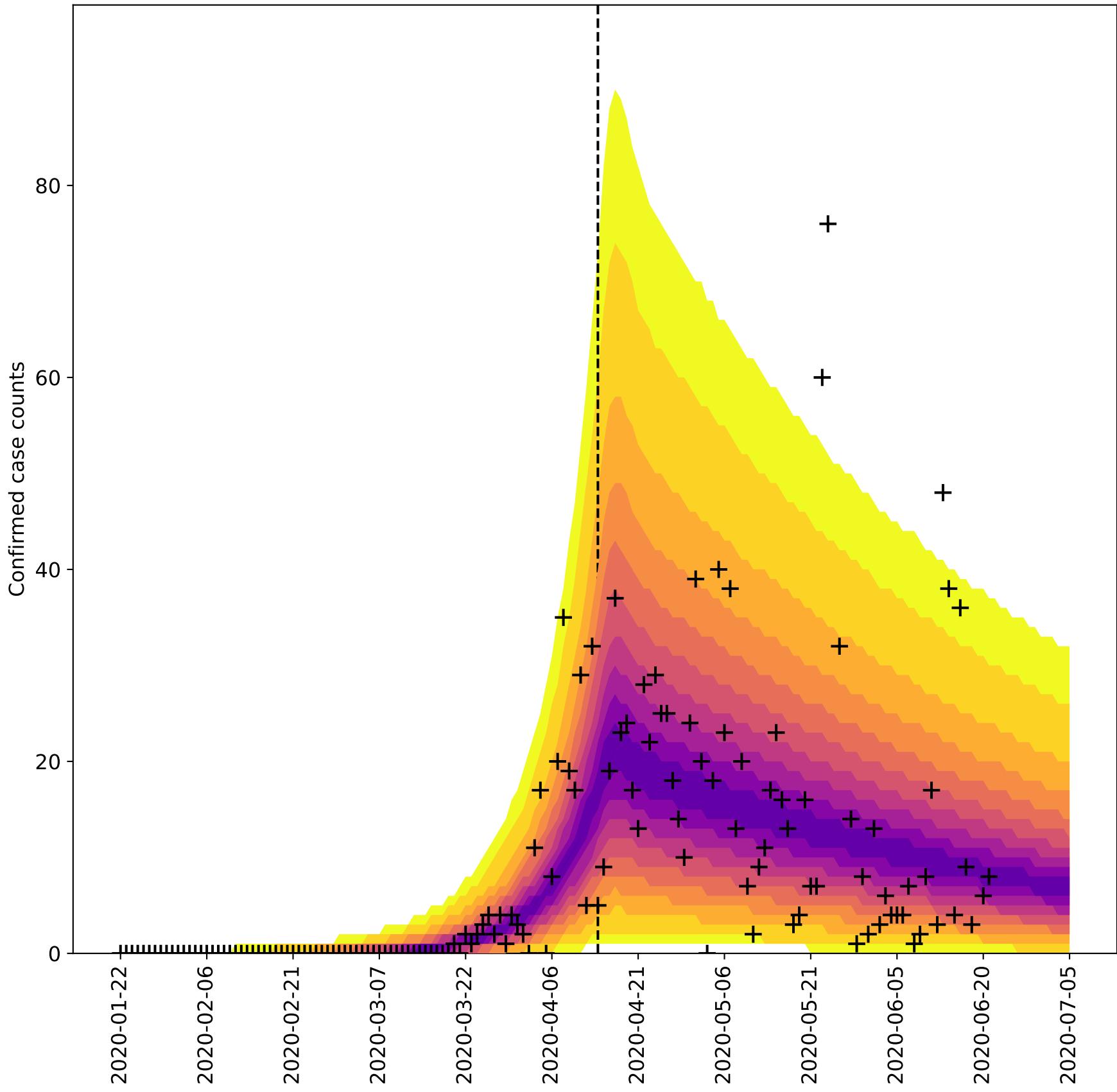
Amarillo, TX



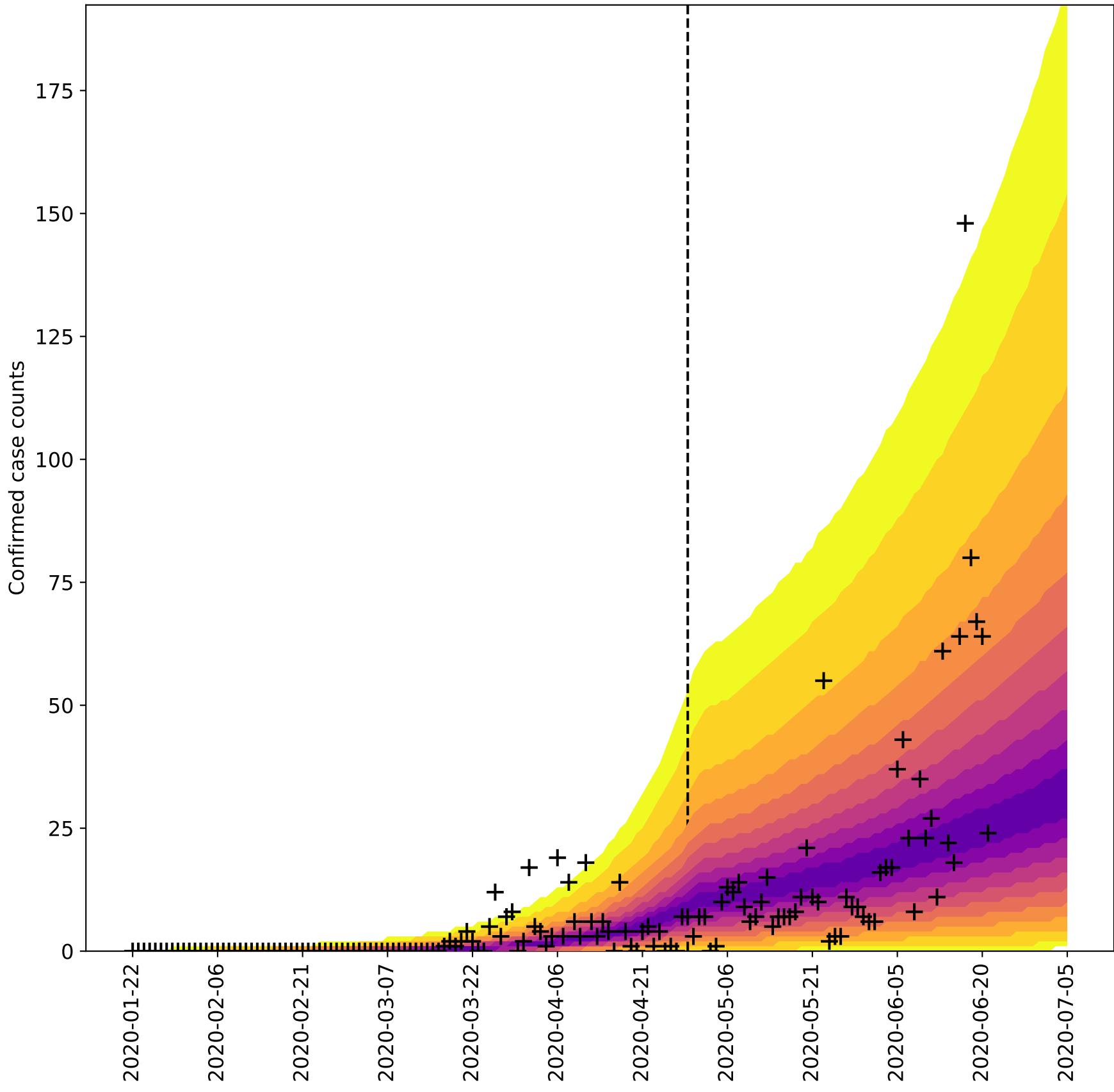
Tuscaloosa, AL



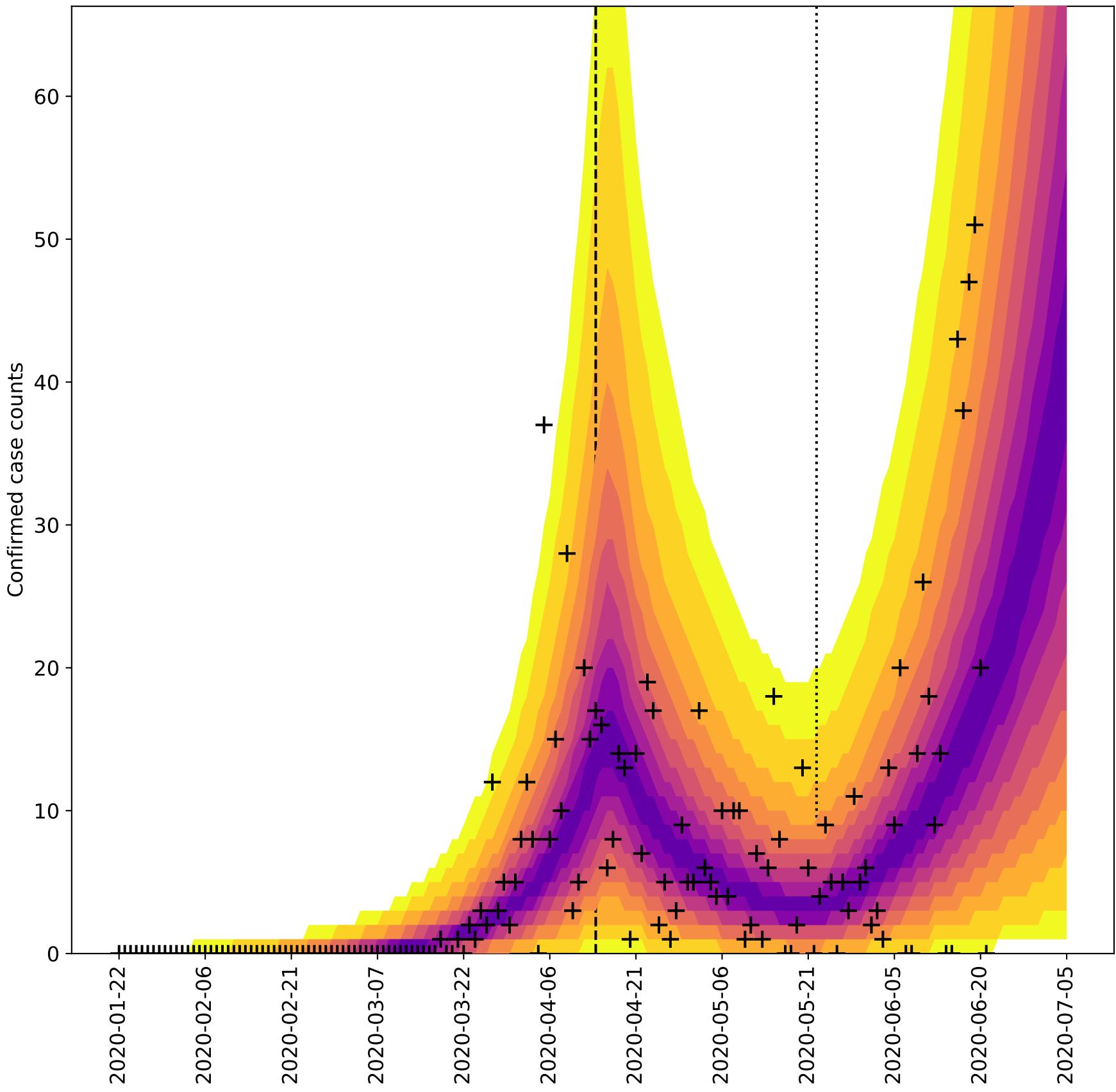
Norwich-New London, CT



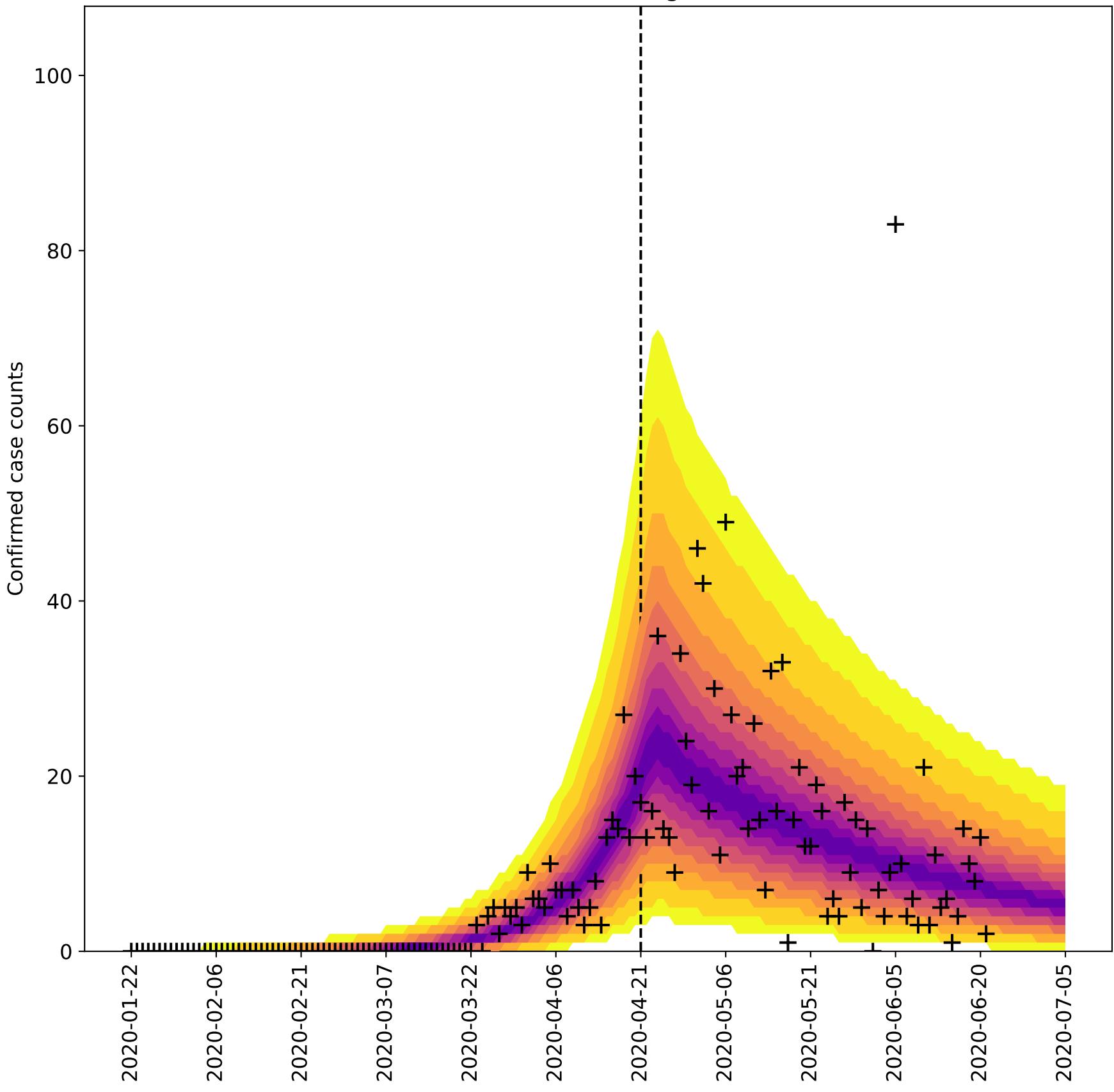
College Station-Bryan, TX



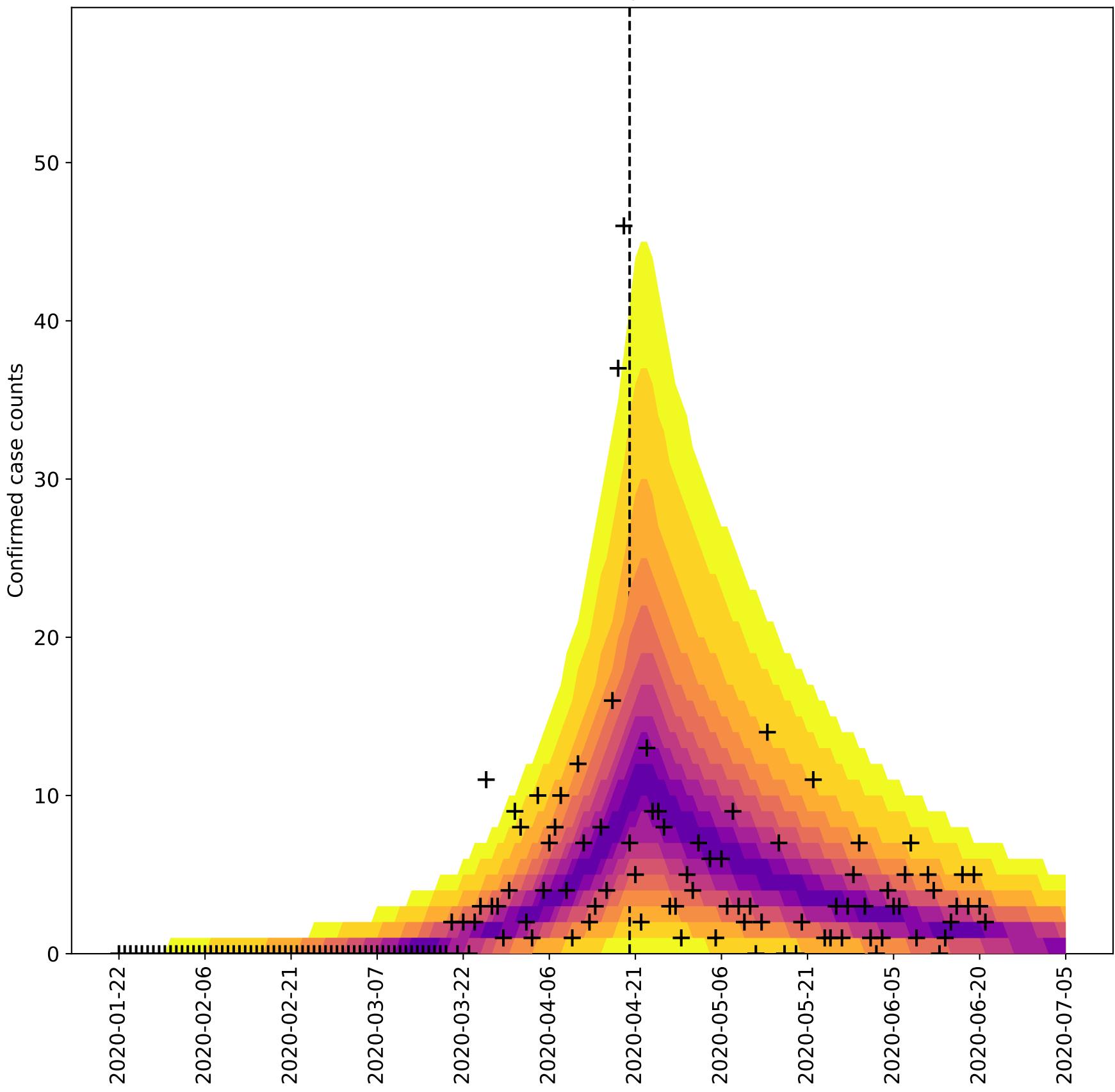
Laredo, TX



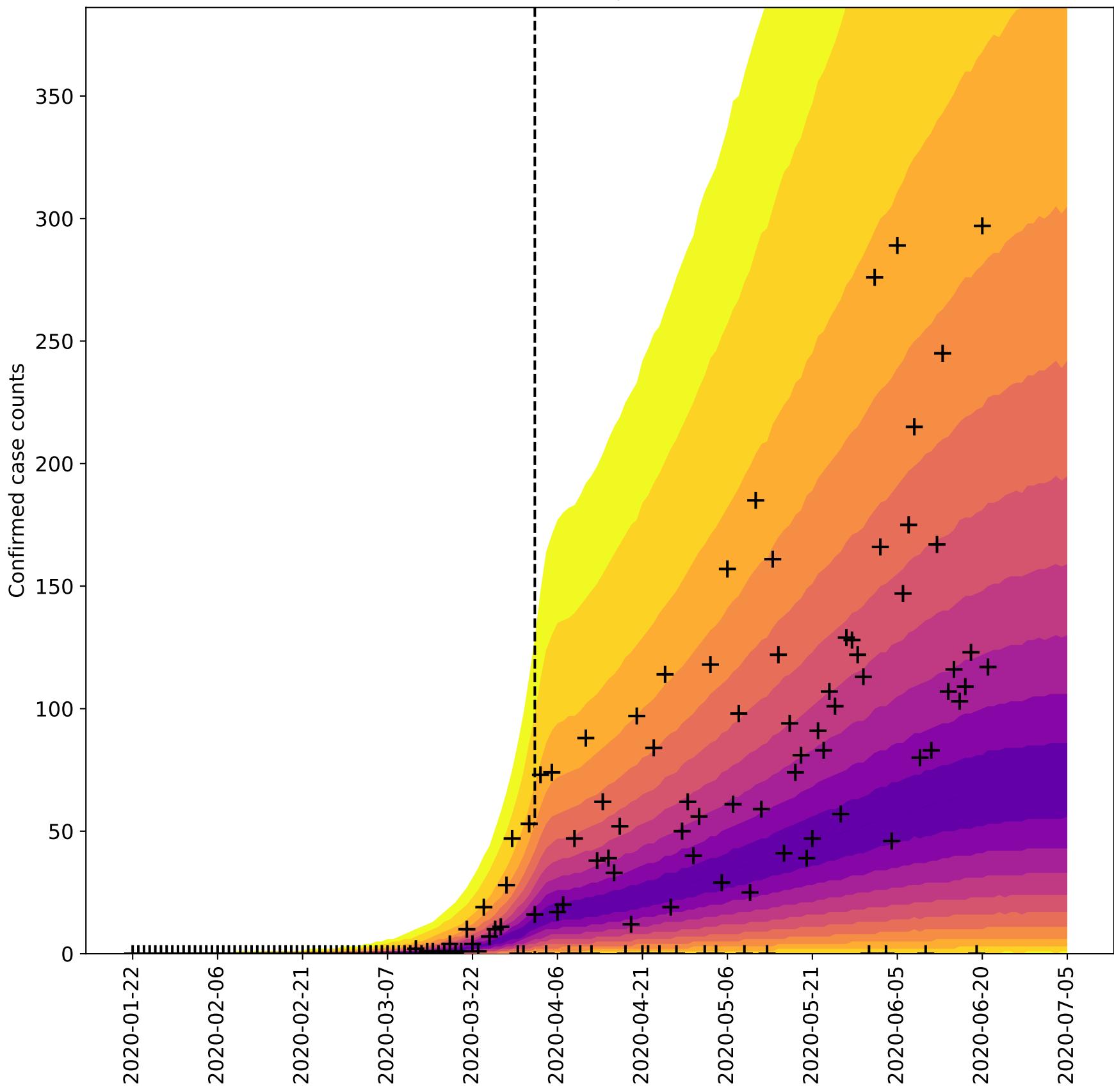
Kalamazoo-Portage, MI



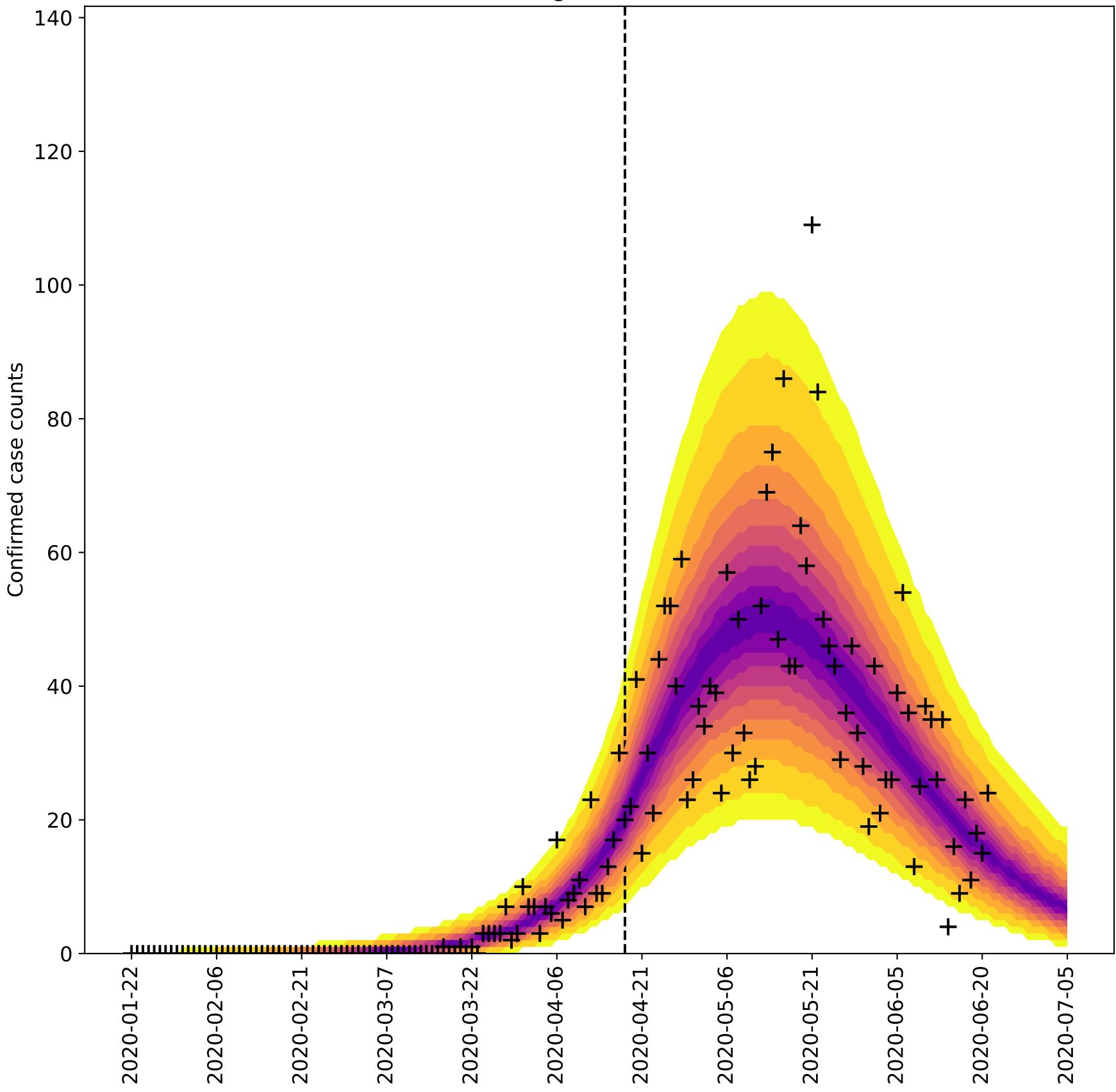
Charleston, WV



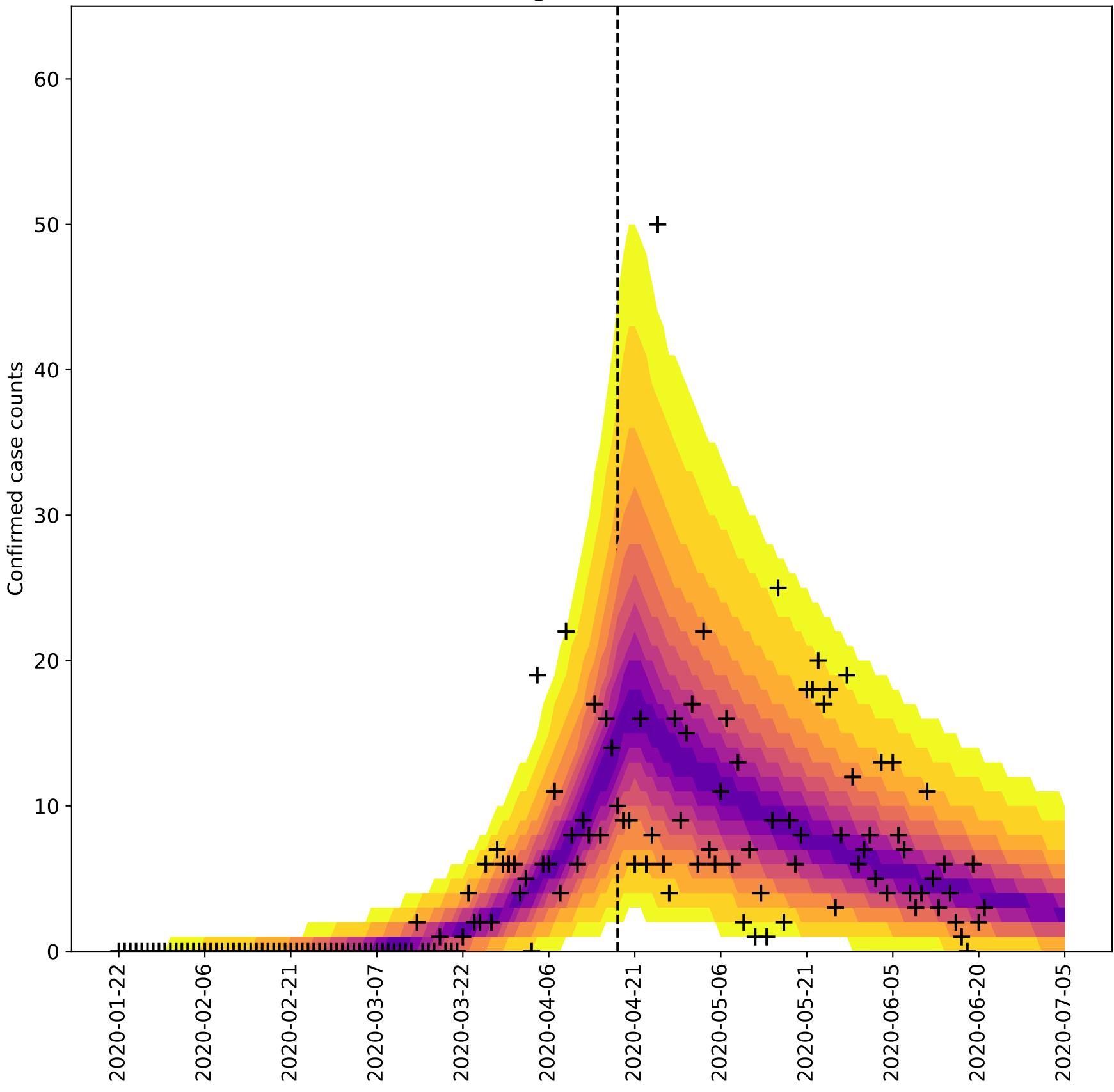
Yakima, WA



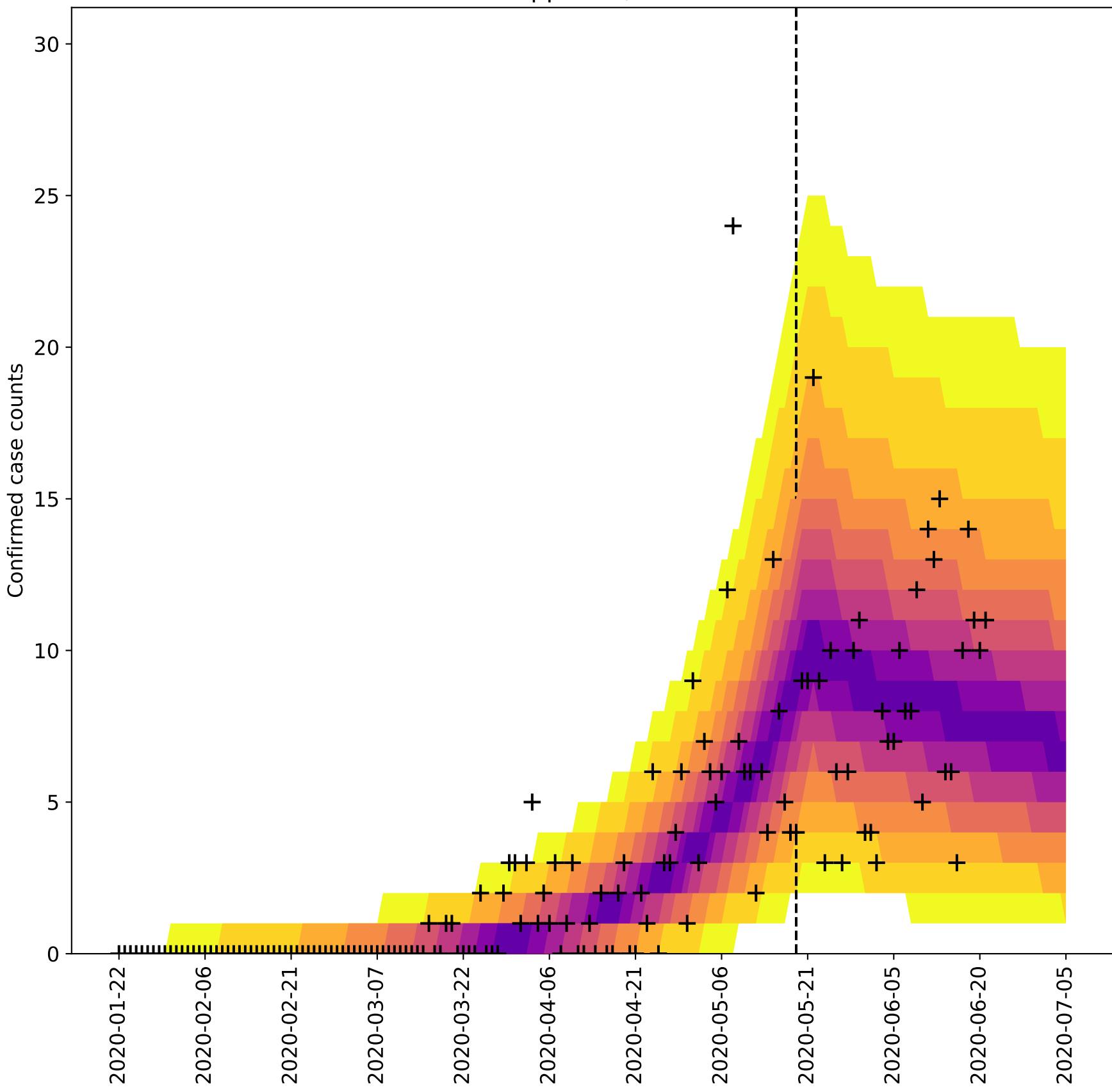
Fargo, ND-MN



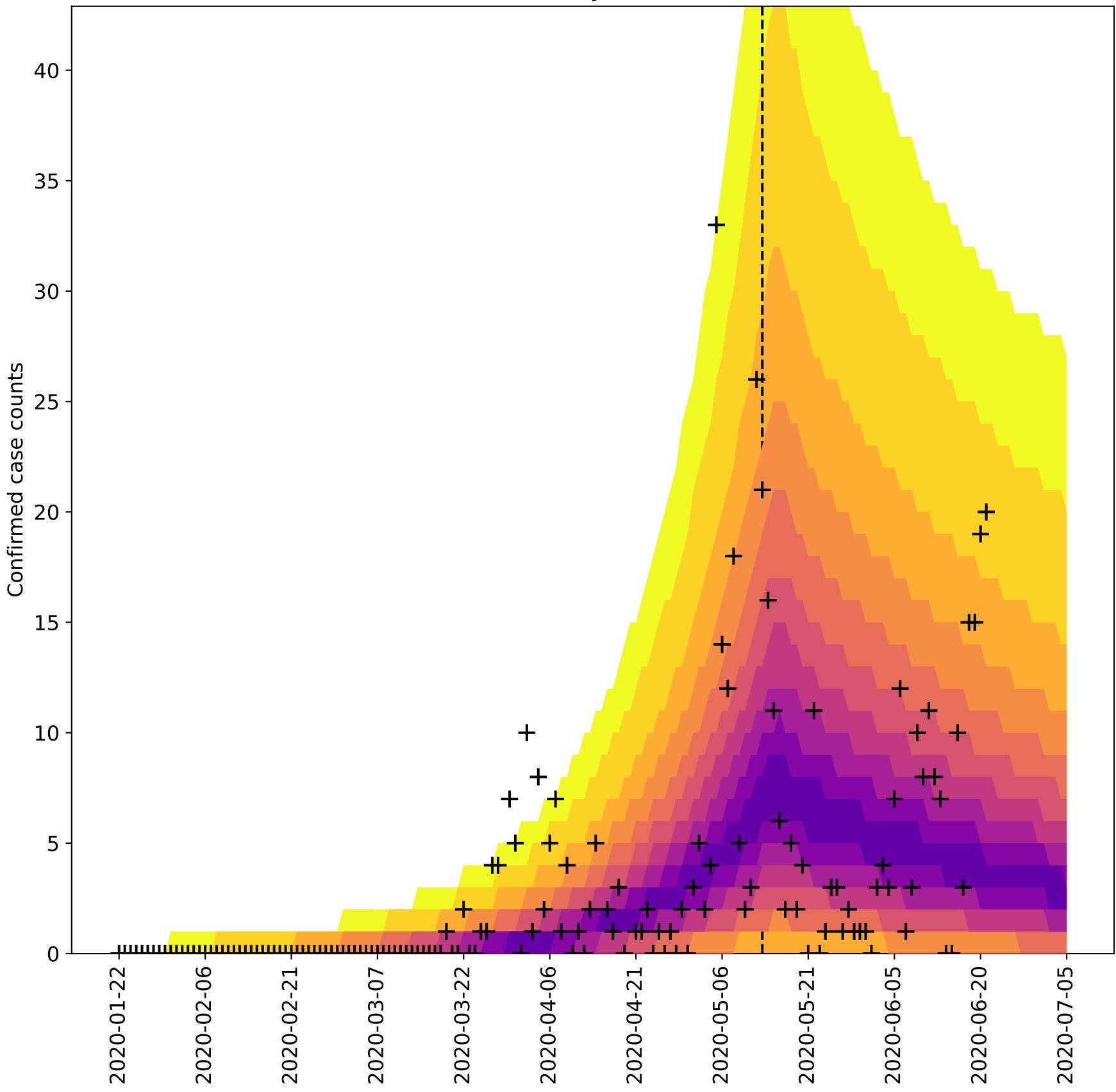
Binghamton, NY



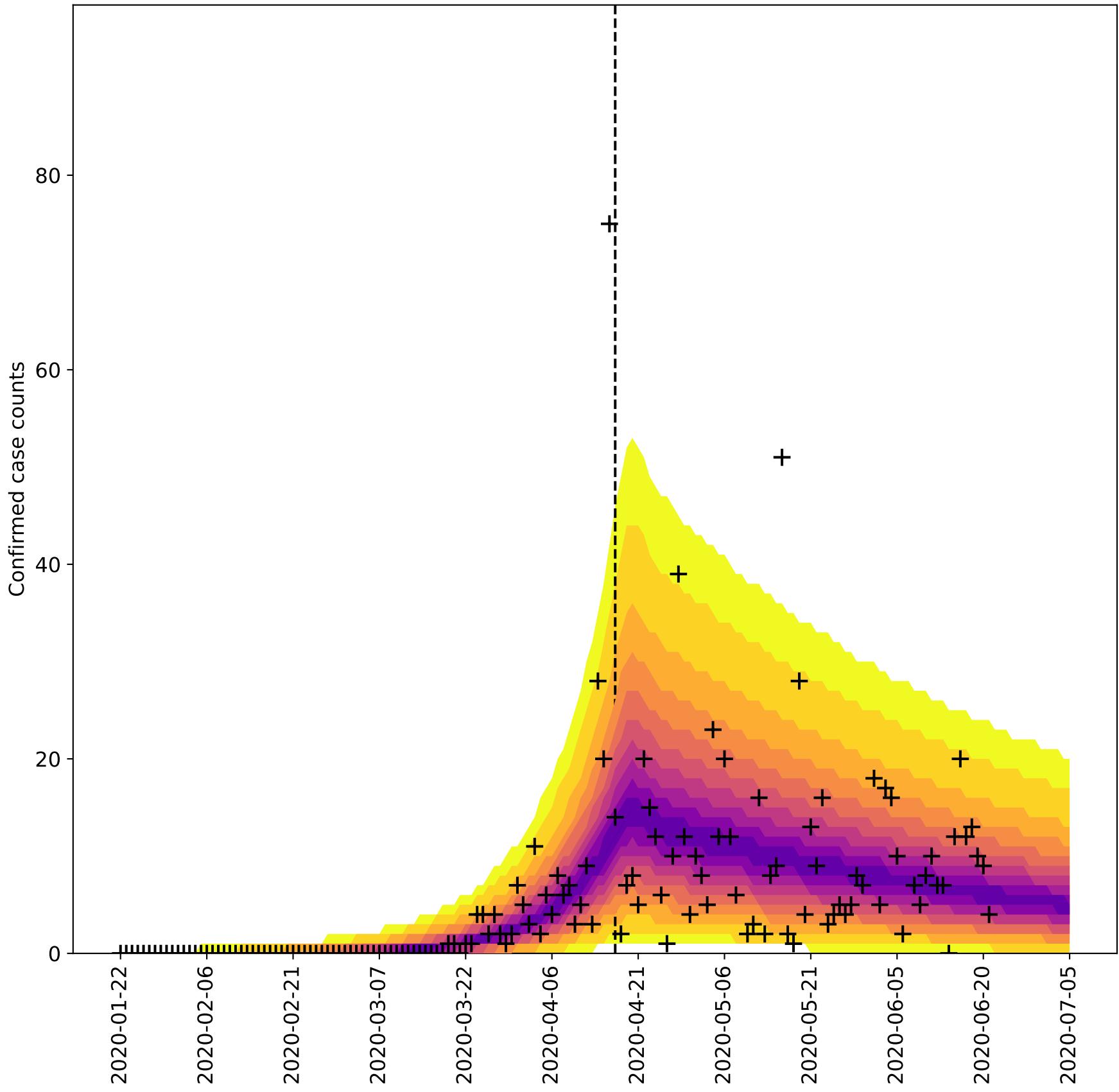
Appleton, WI



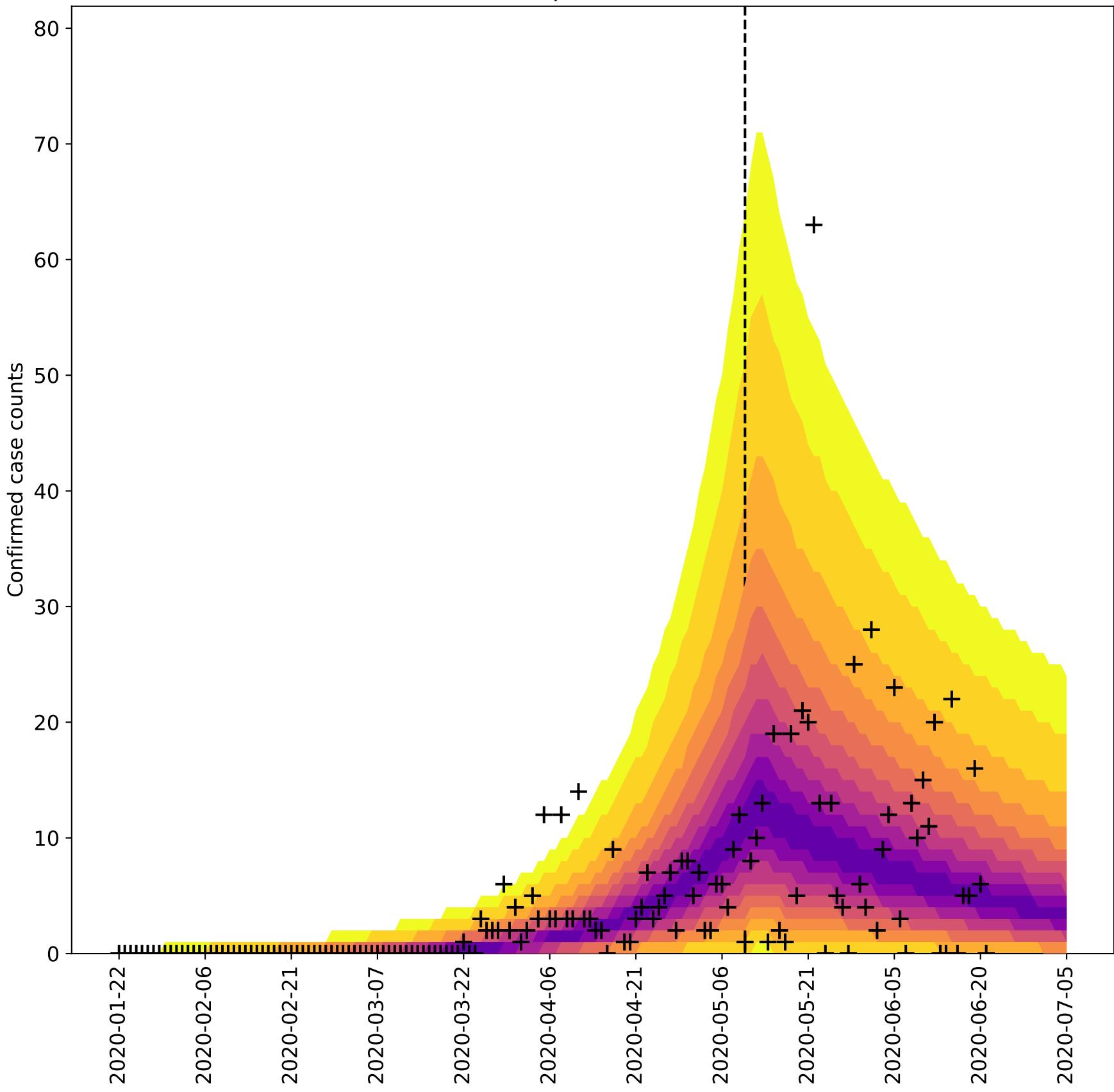
Prescott Valley-Prescott, AZ



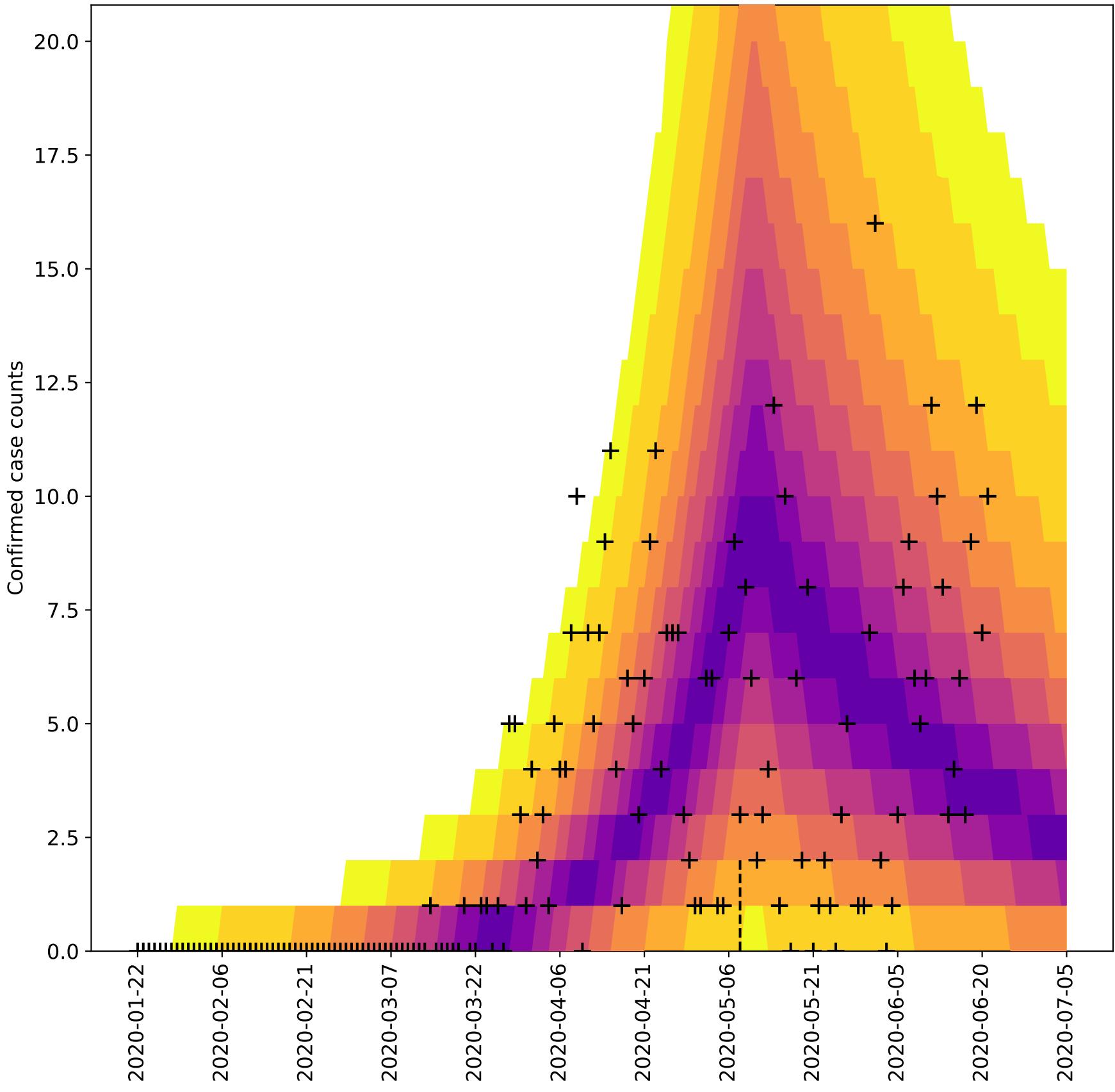
Macon-Bibb County, GA



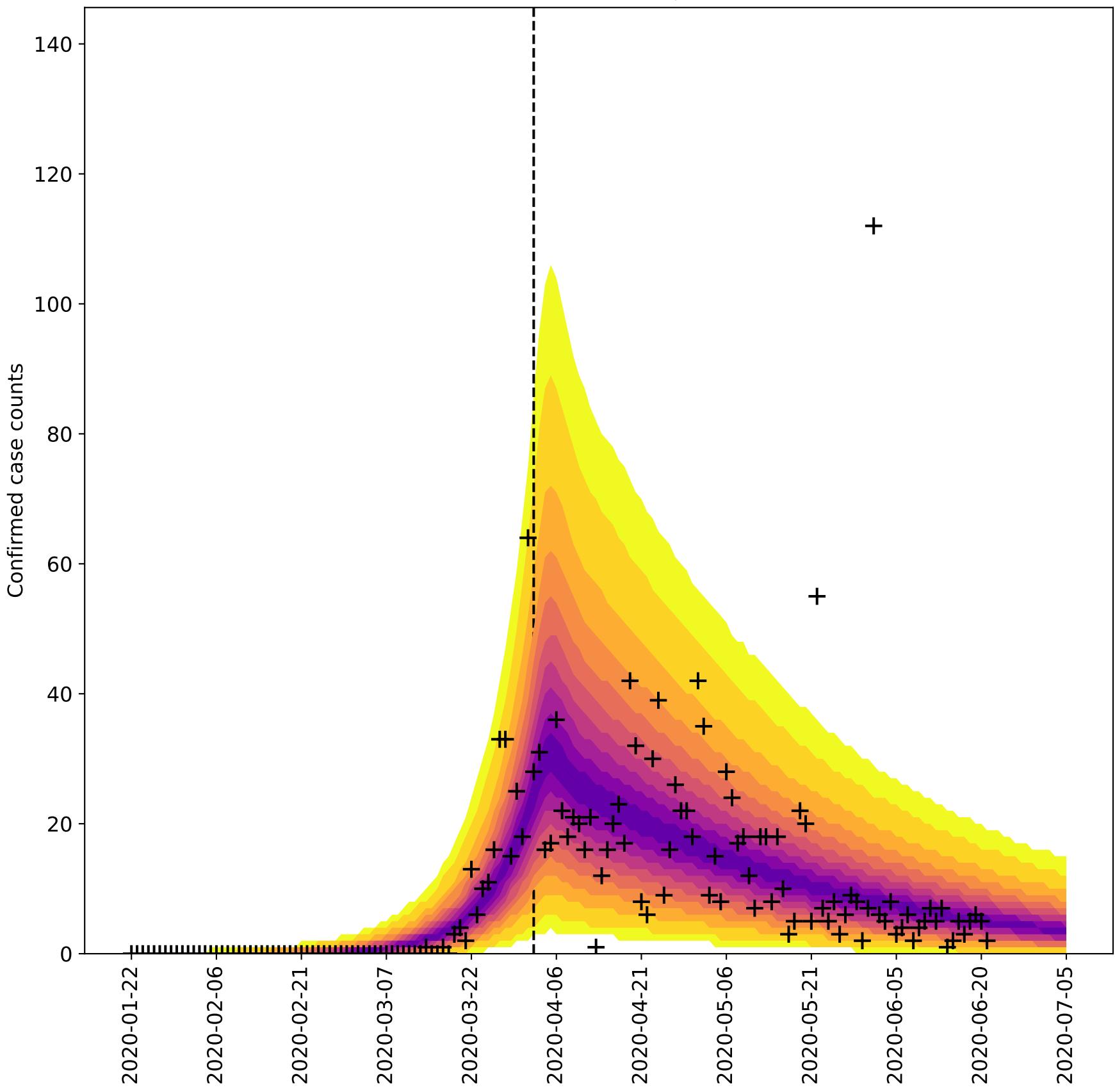
Topeka, KS



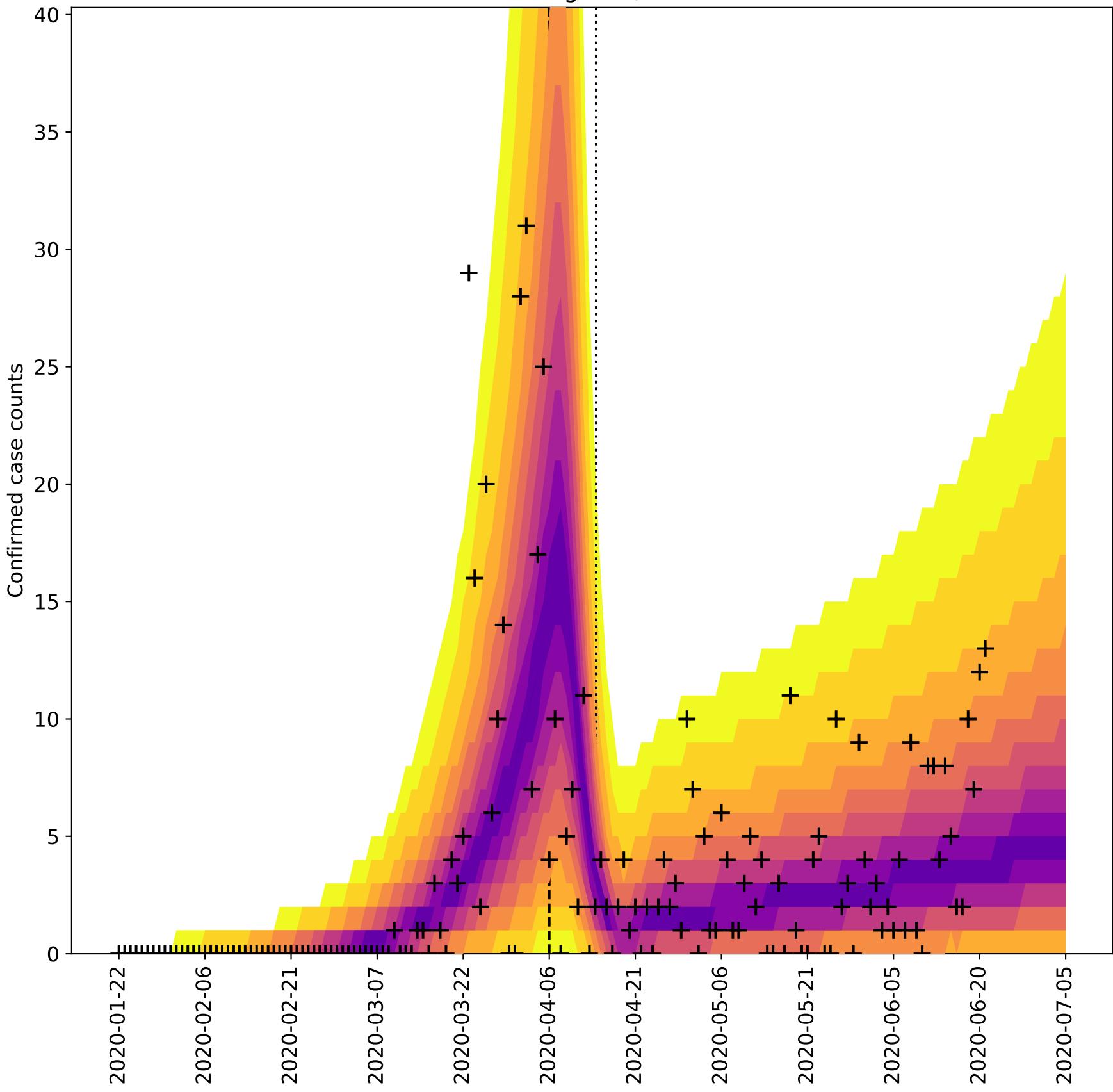
Daphne-Fairhope-Foley, AL



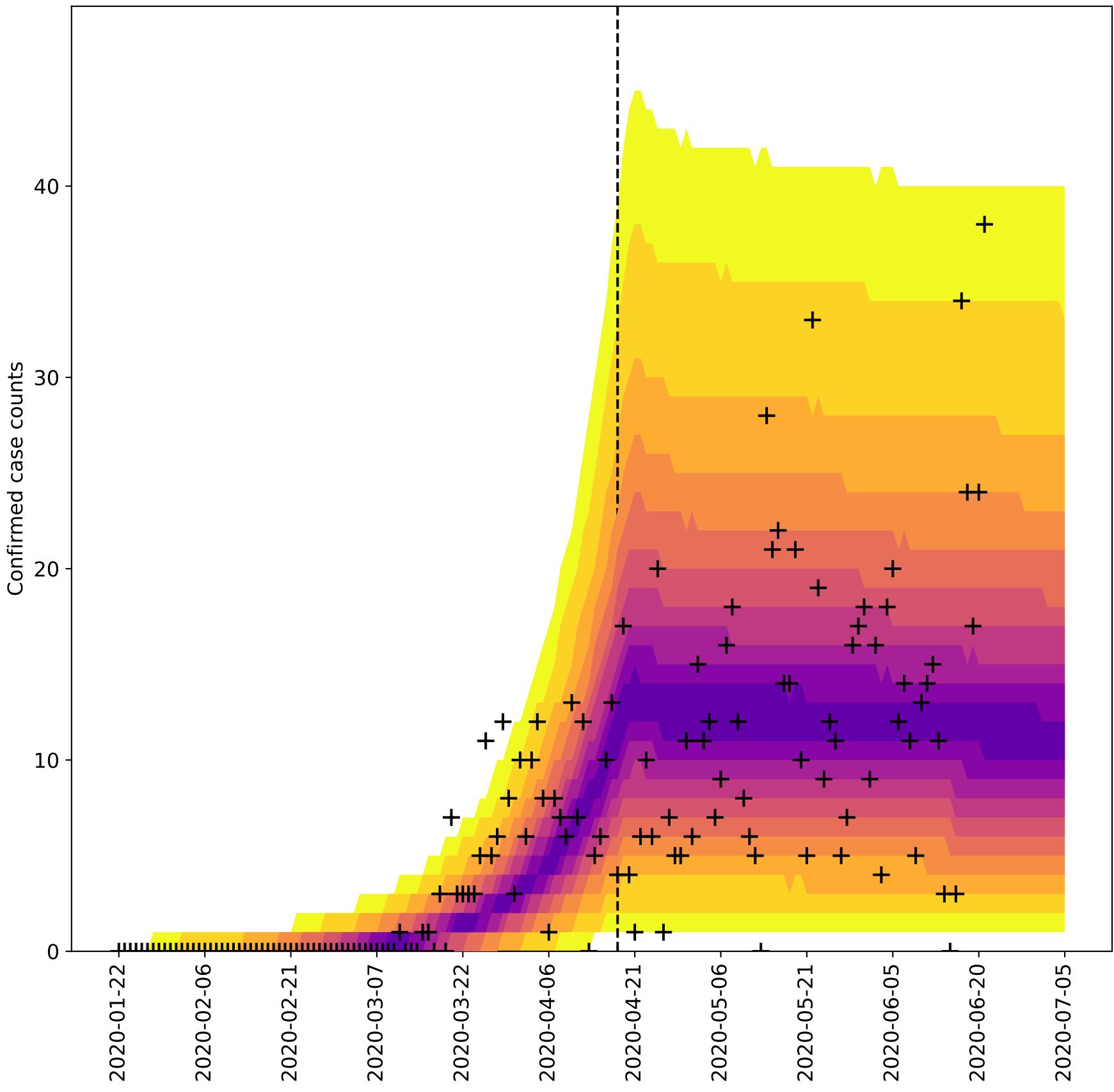
Barnstable Town, MA



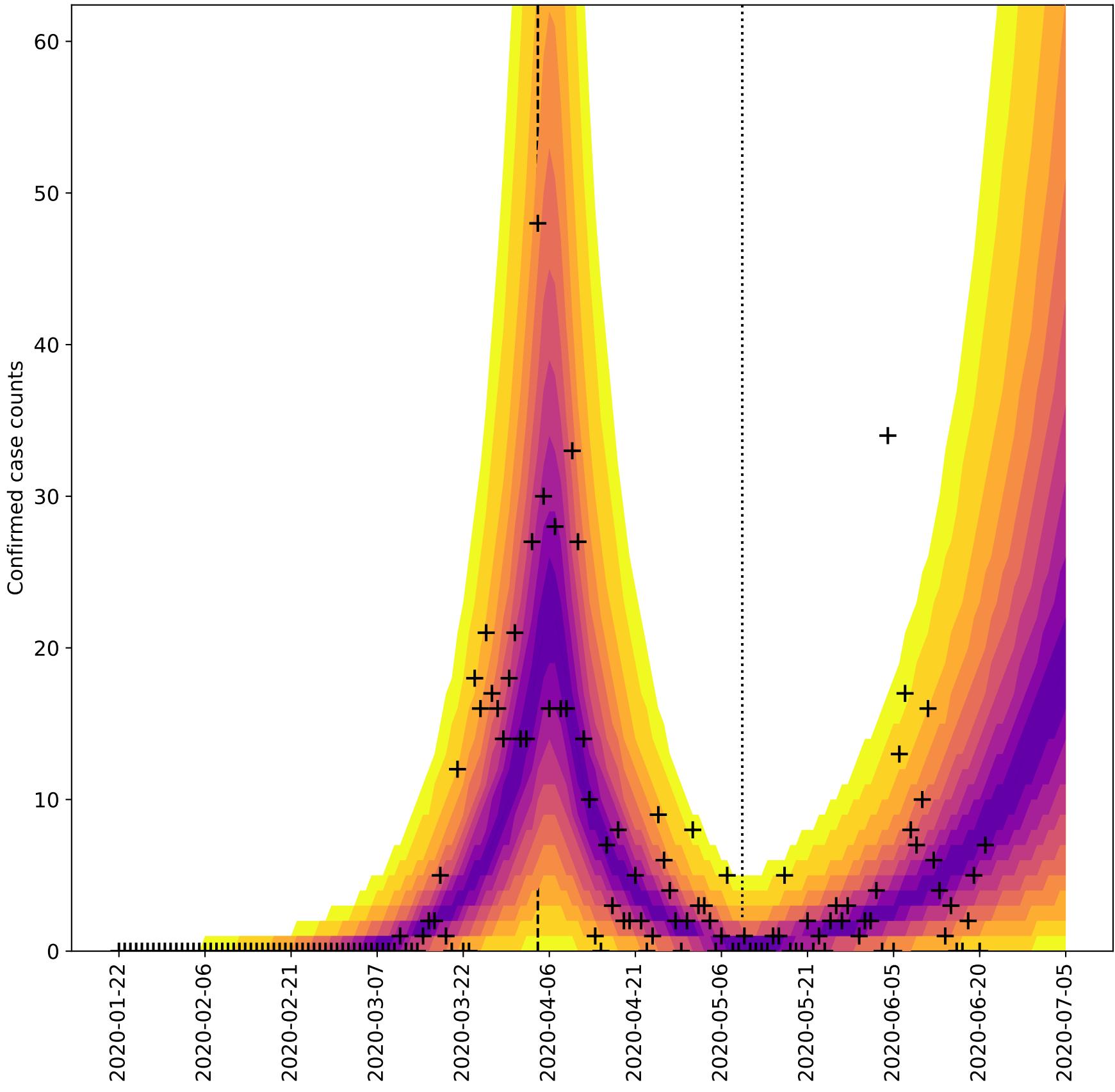
Bellingham, WA



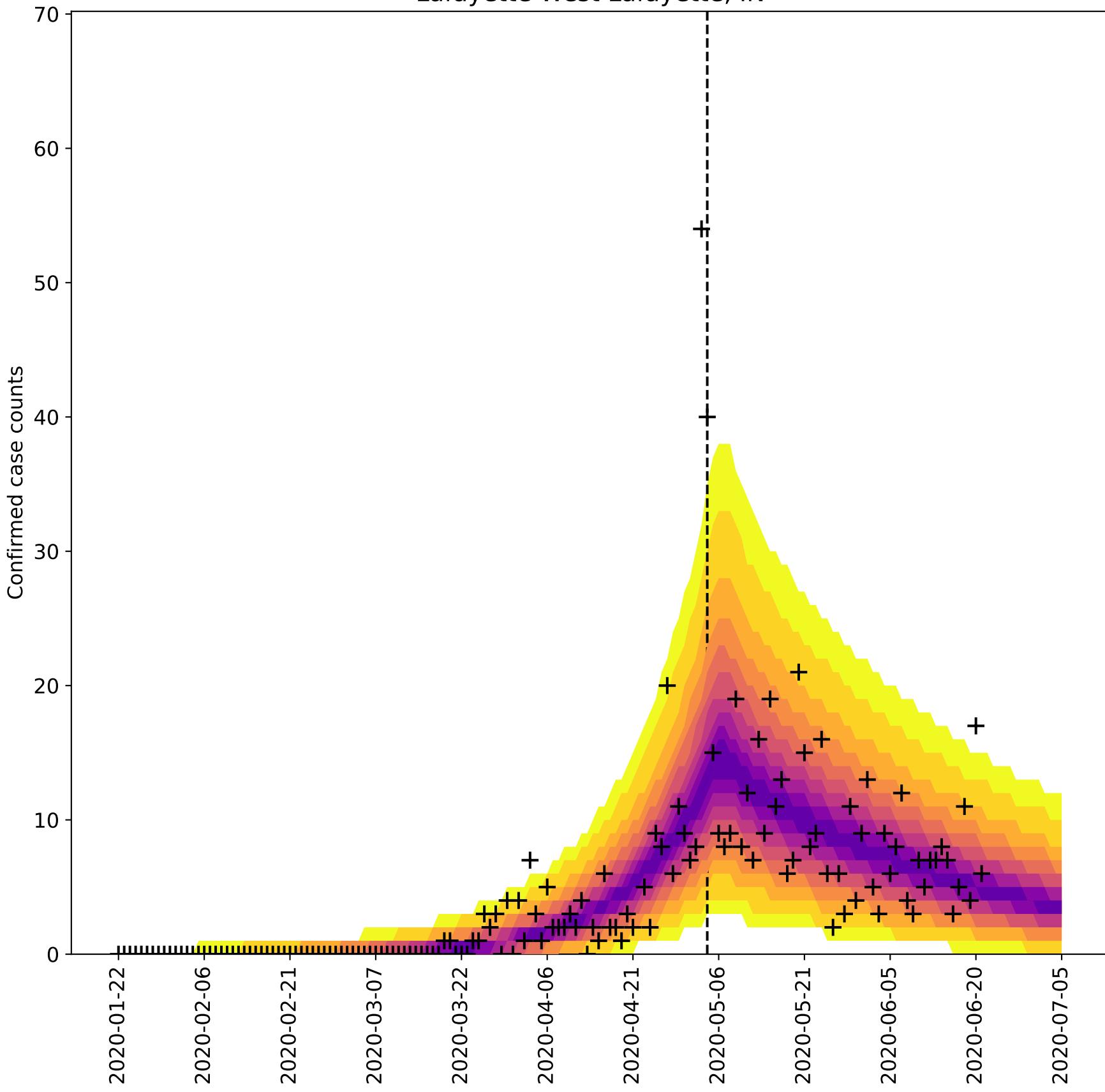
Rochester, MN



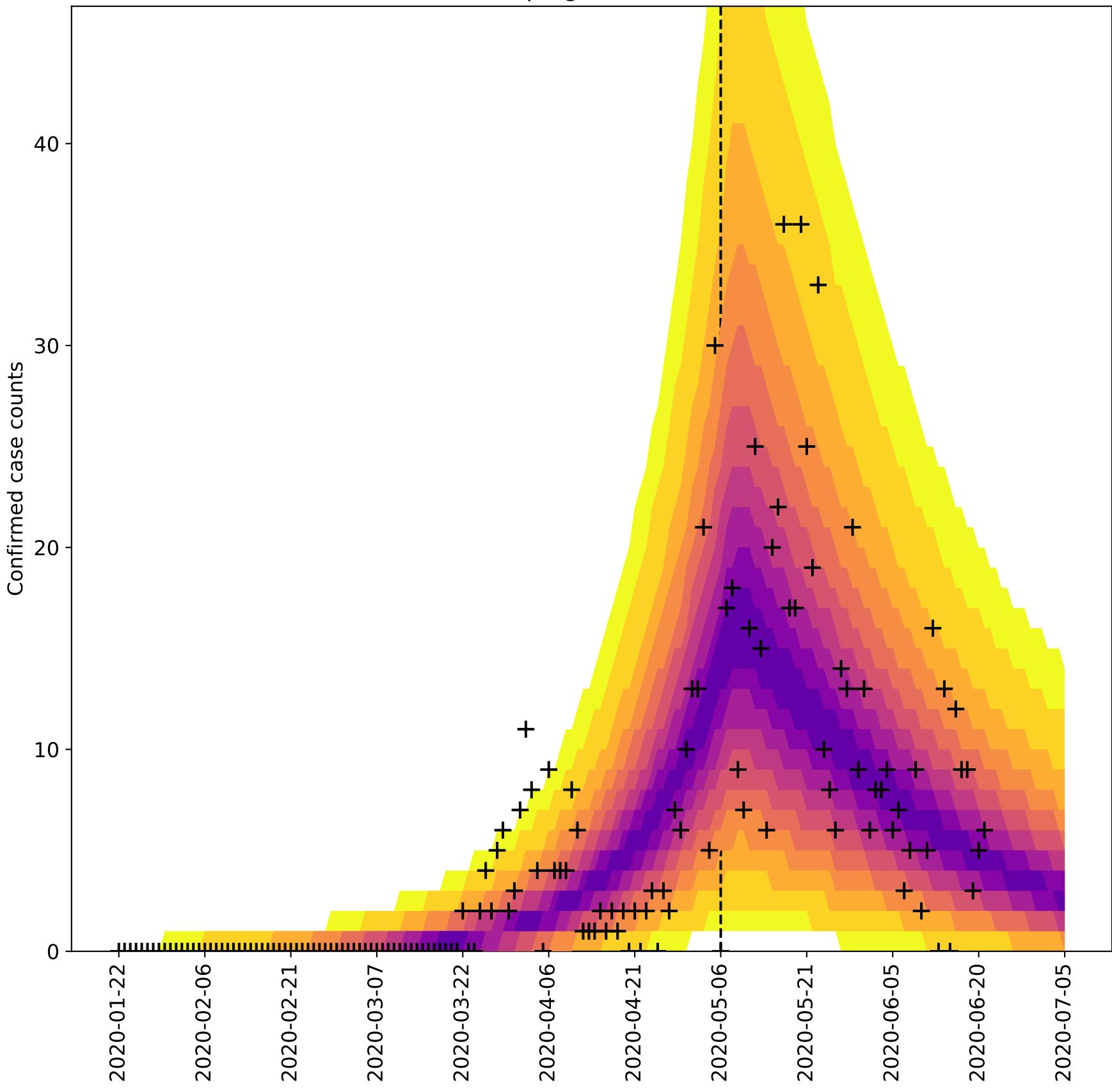
Burlington-South Burlington, VT



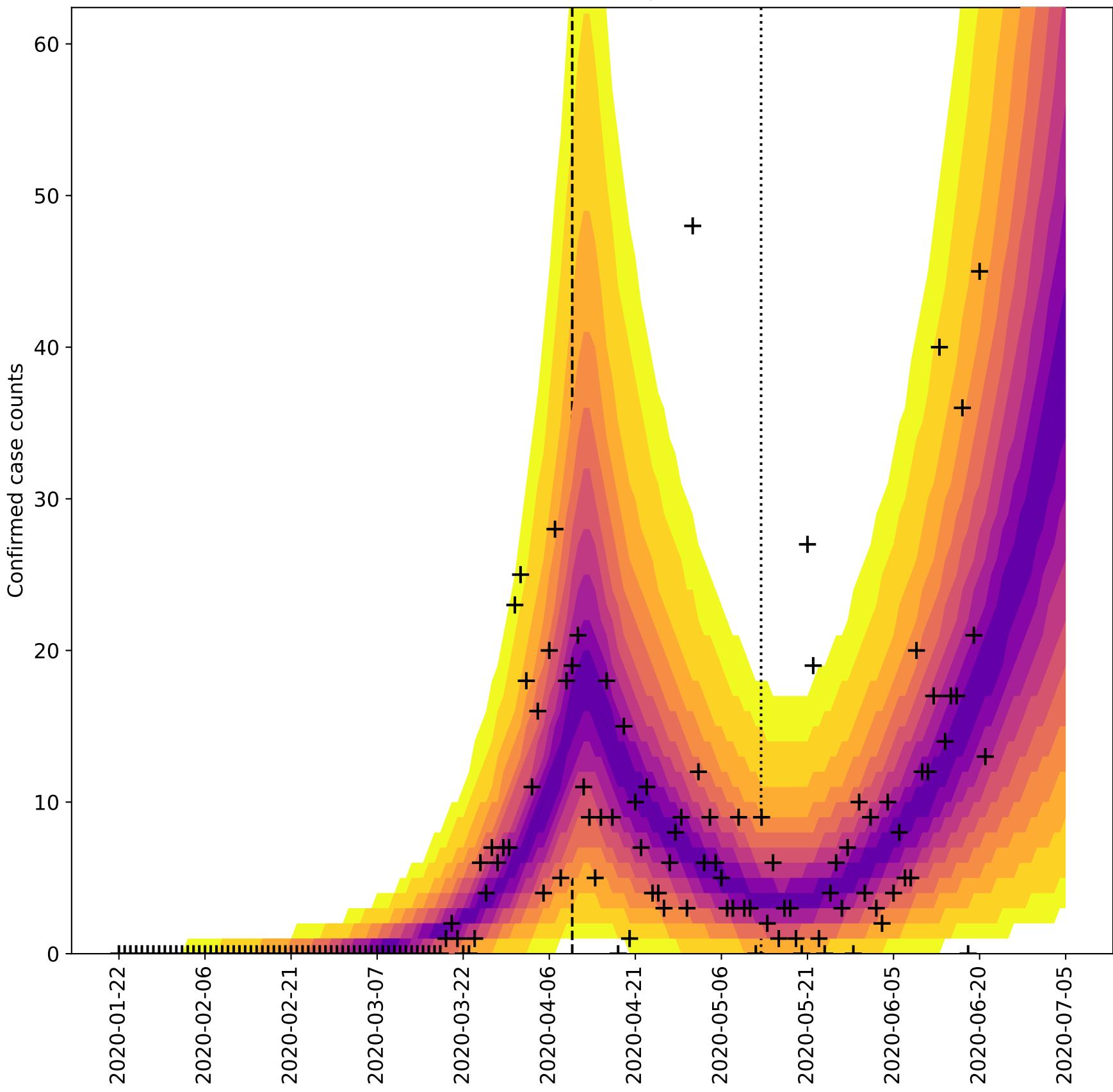
Lafayette-West Lafayette, IN



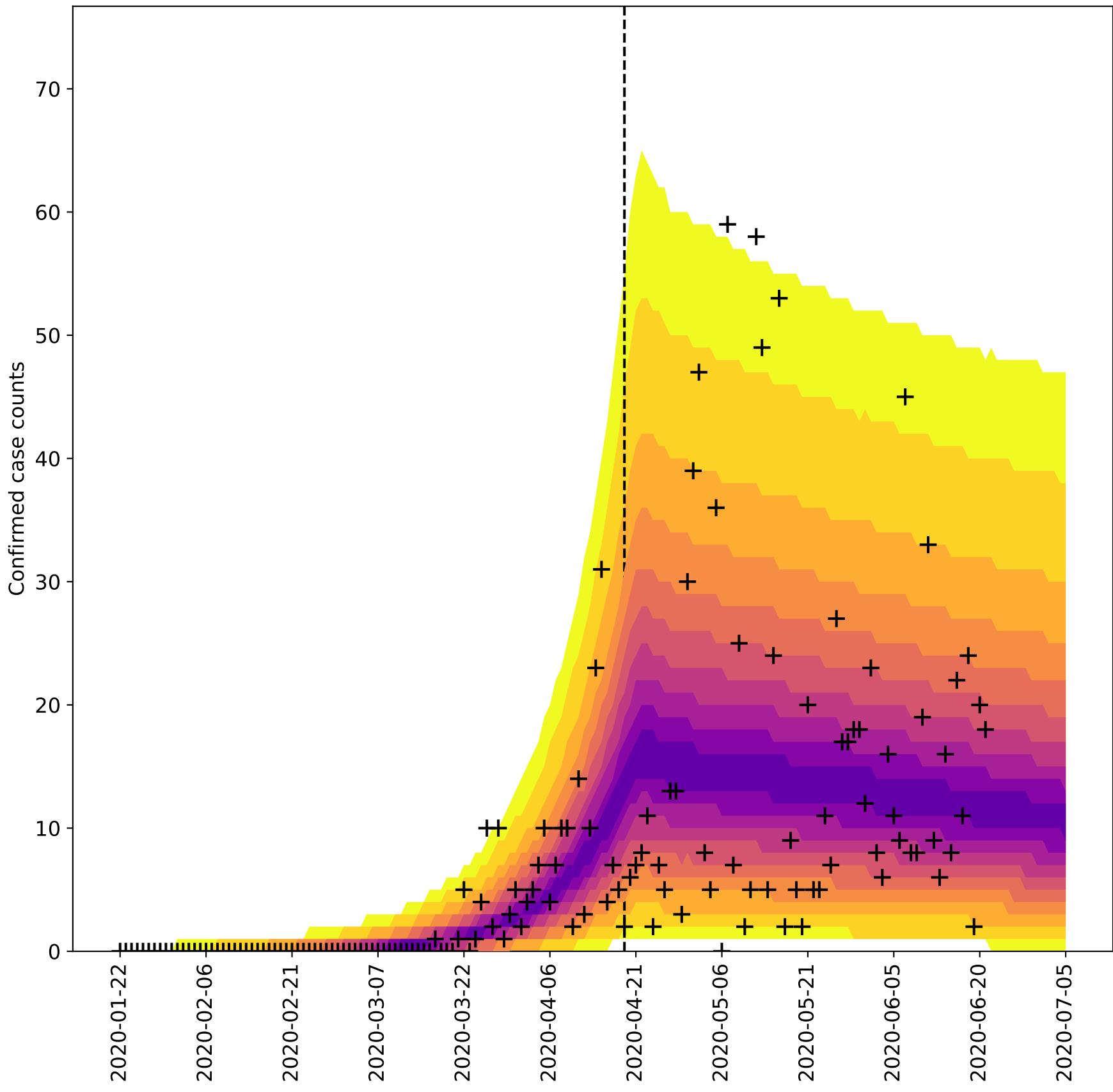
Champaign-Urbana, IL



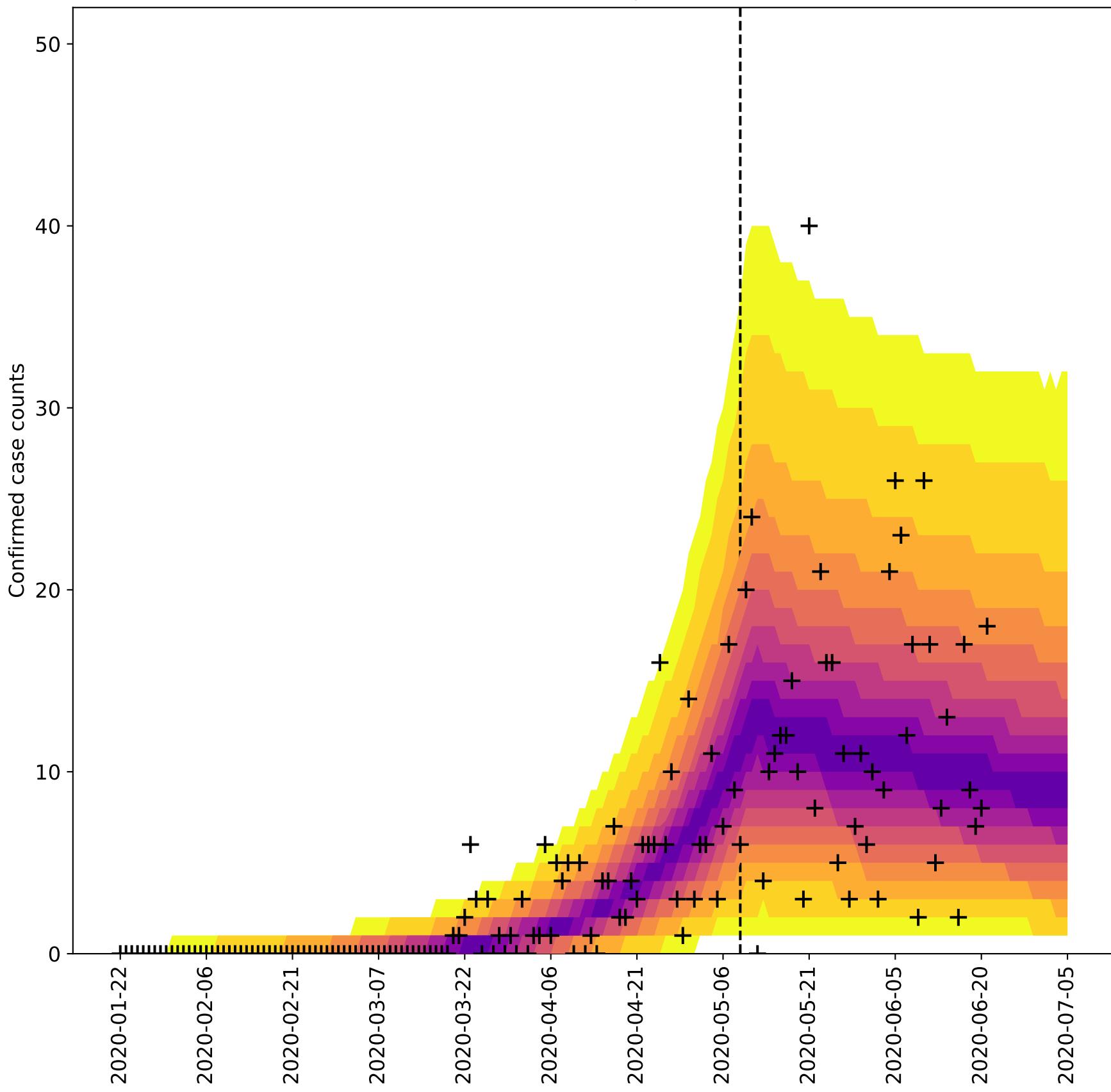
Lake Charles, LA



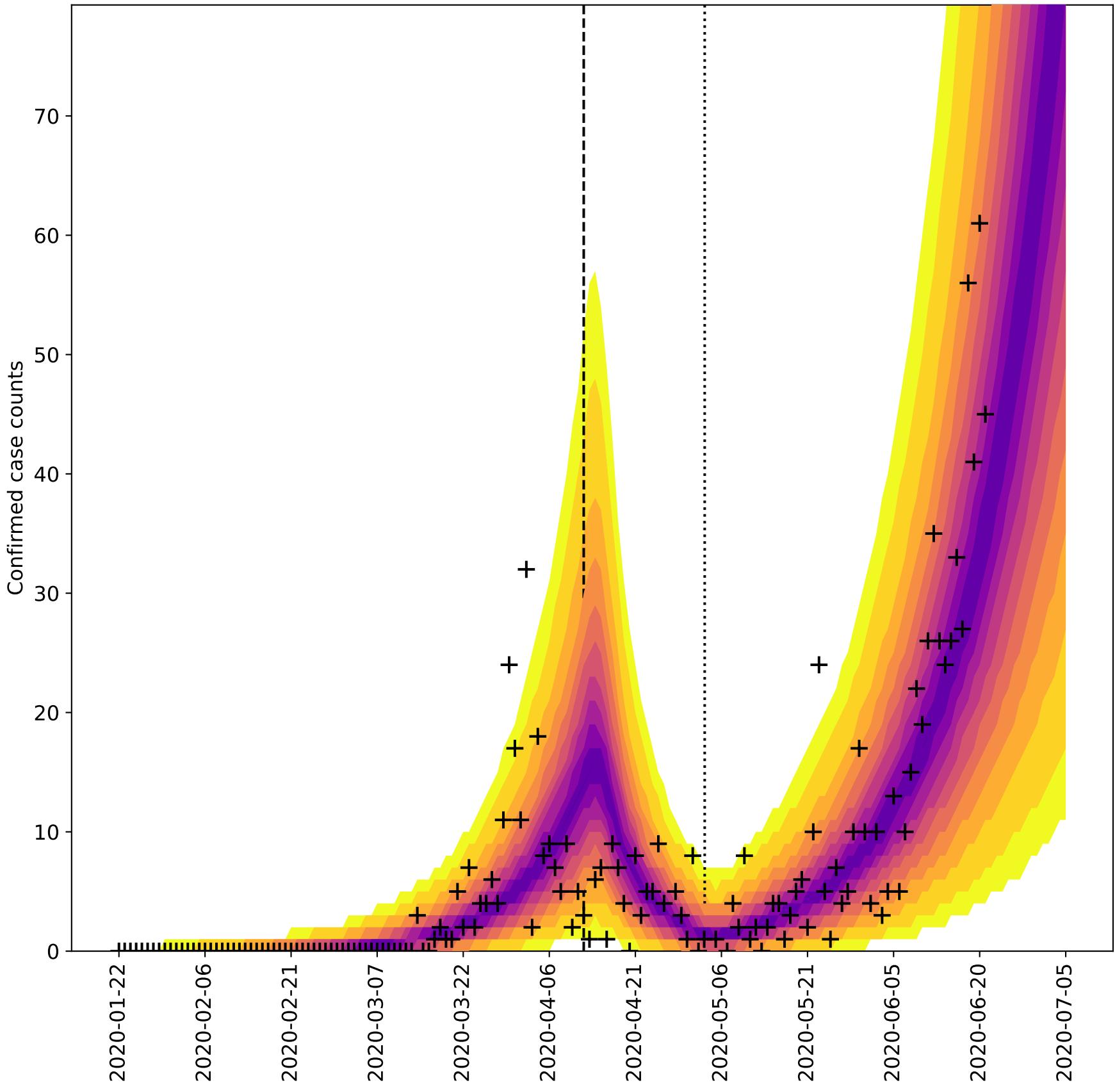
Charlottesville, VA



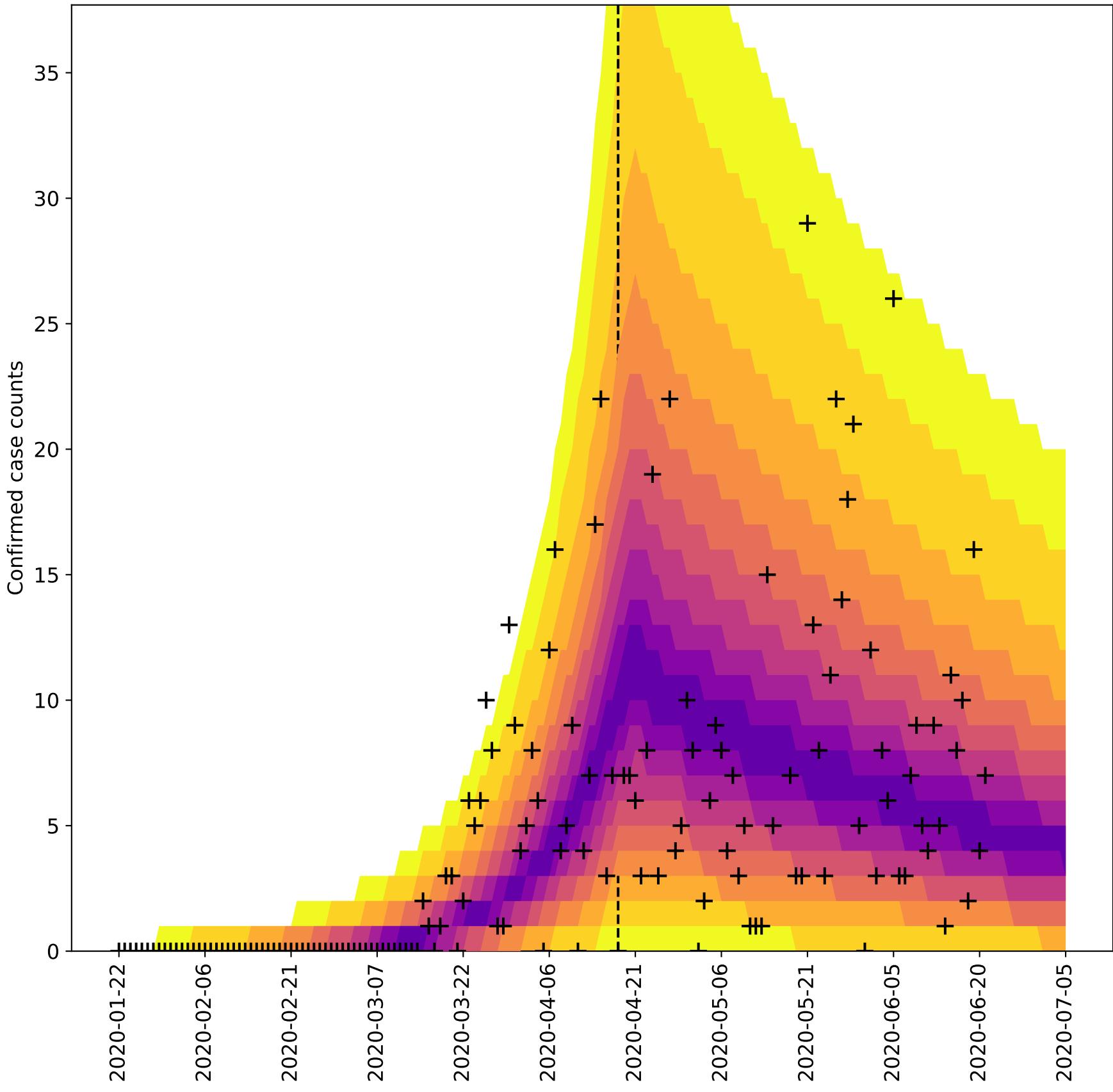
Las Cruces, NM



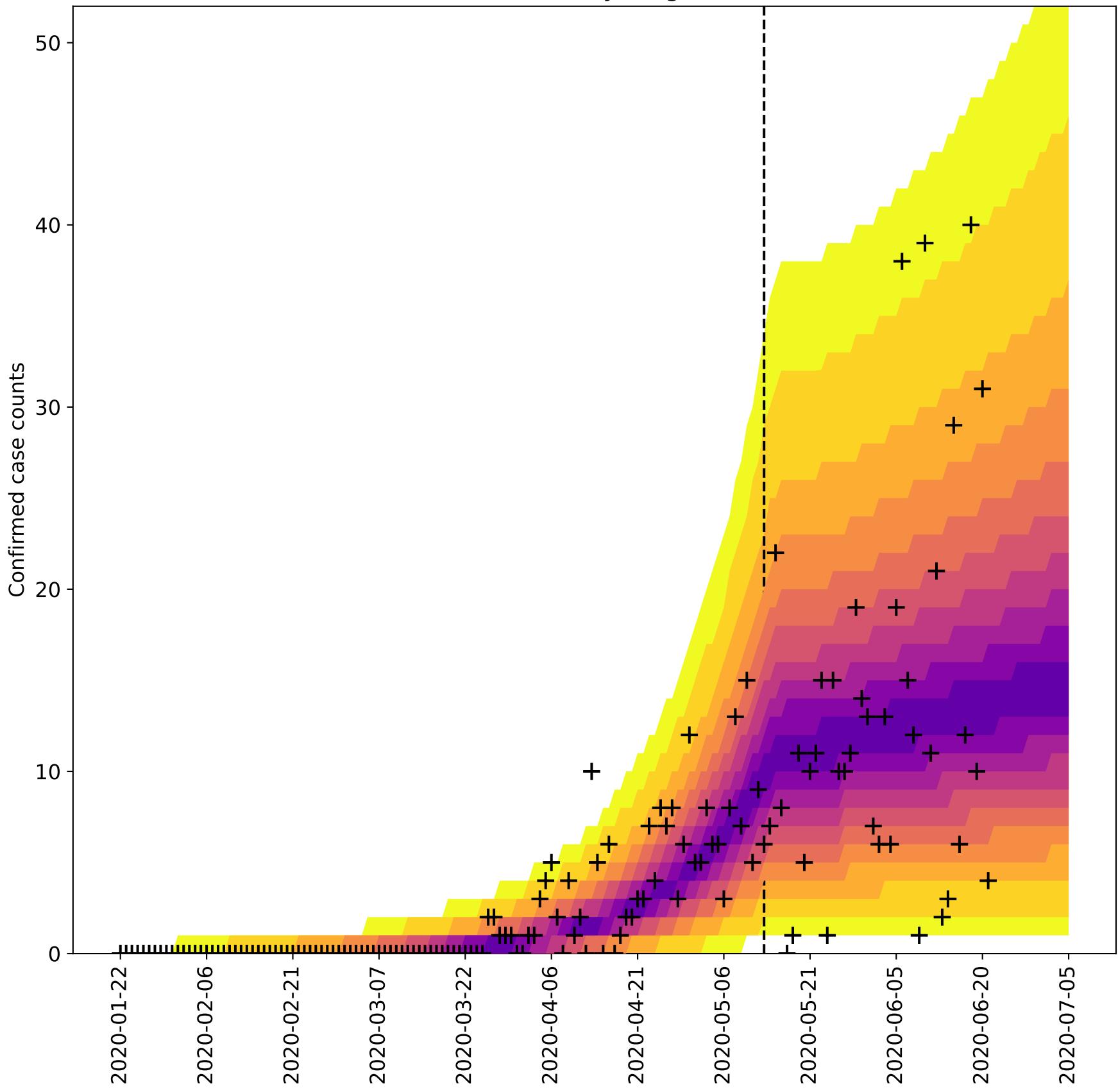
Hilton Head Island-Bluffton-Beaufort, SC



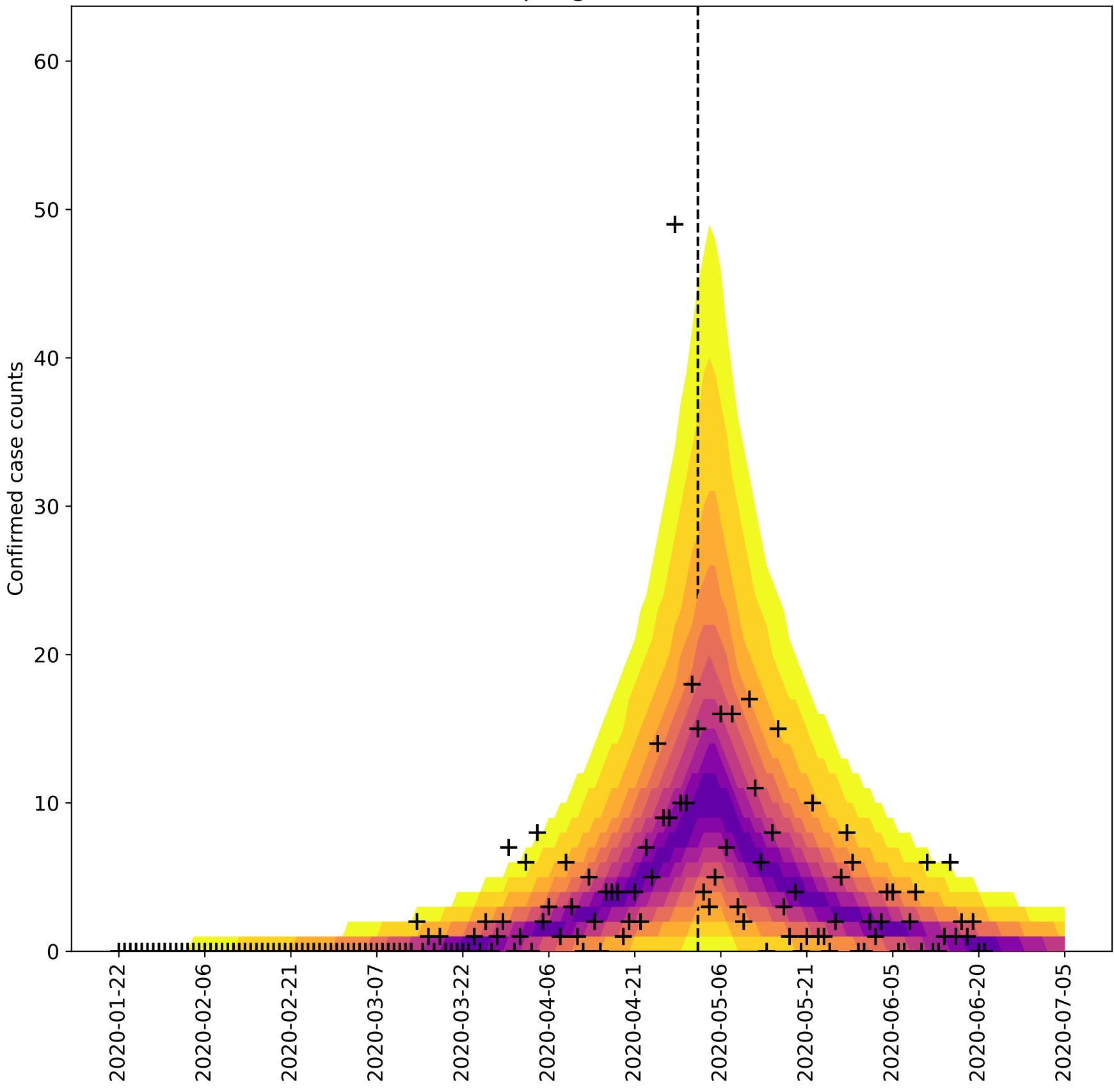
Athens-Clarke County, GA



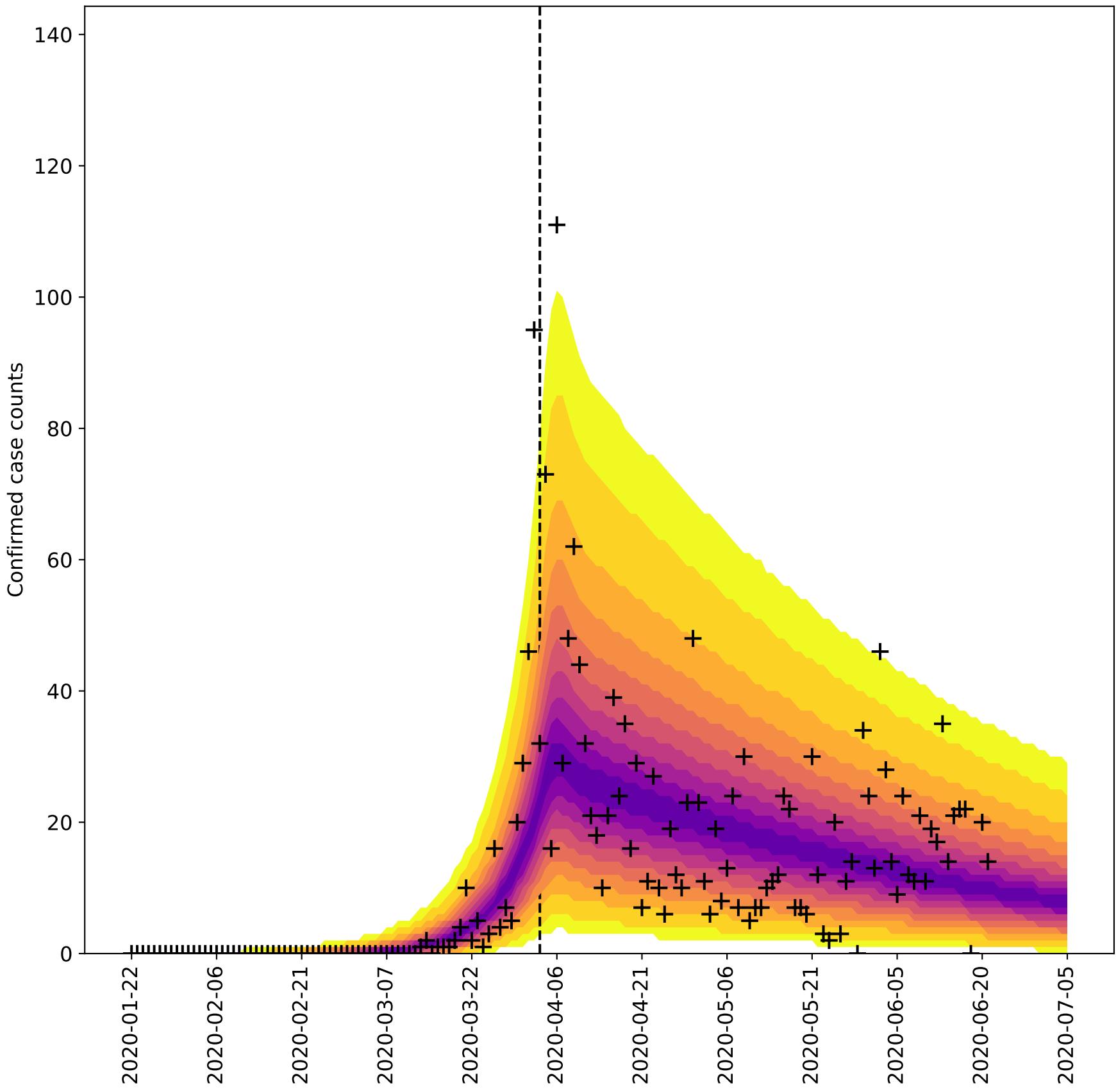
Lake Havasu City-Kingman, AZ



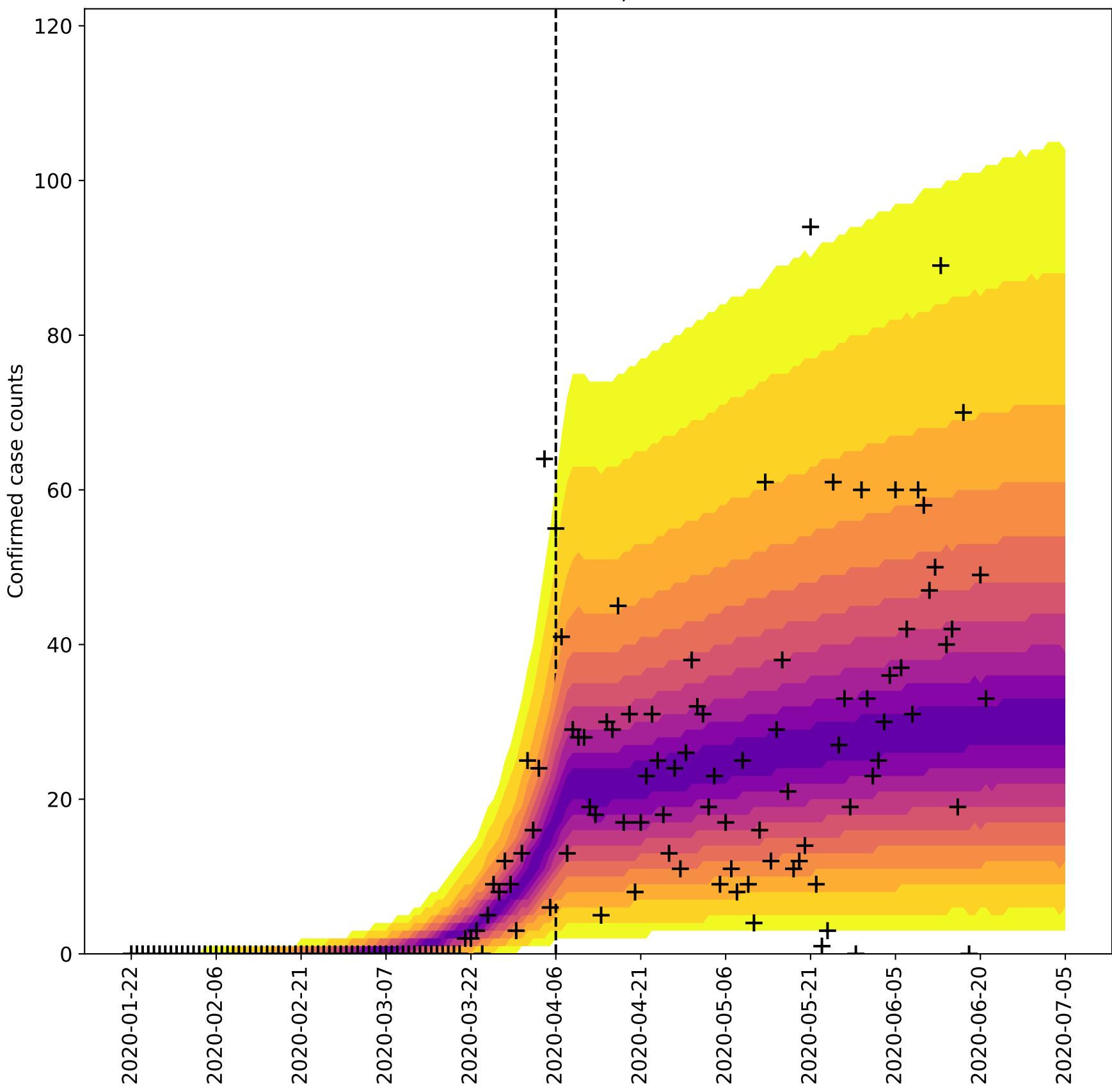
Springfield, IL



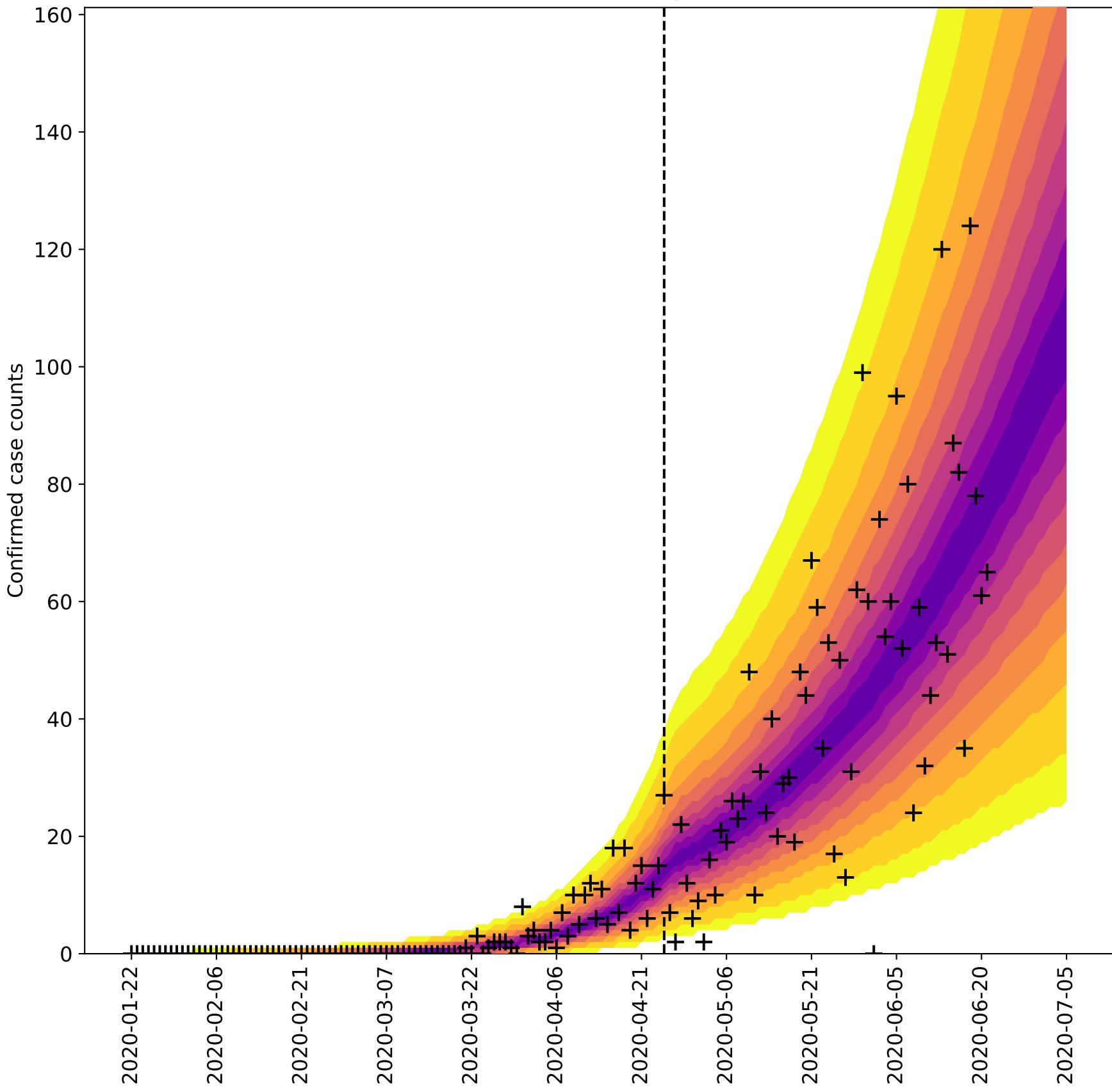
Houma-Thibodaux, LA



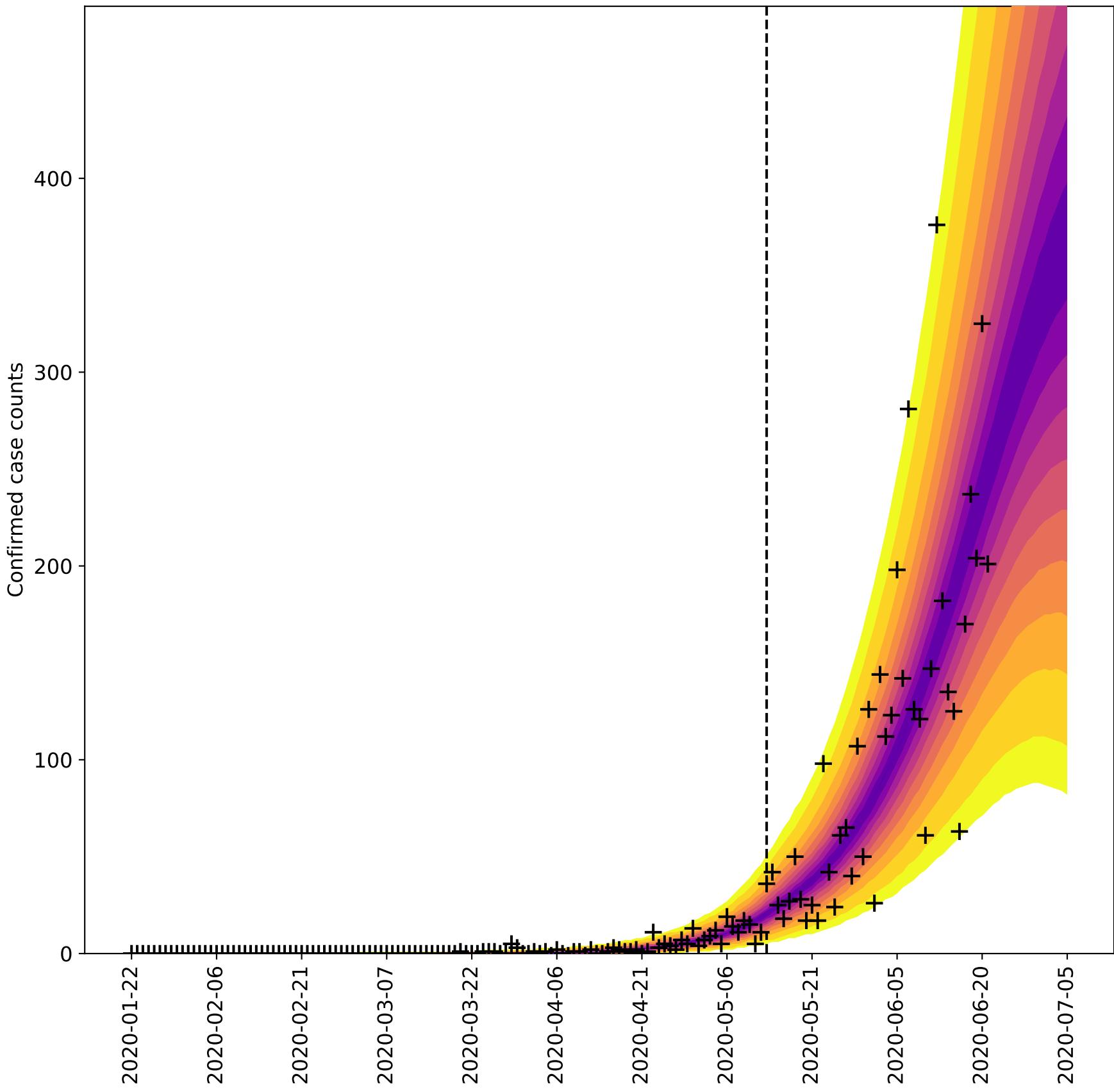
Monroe, LA



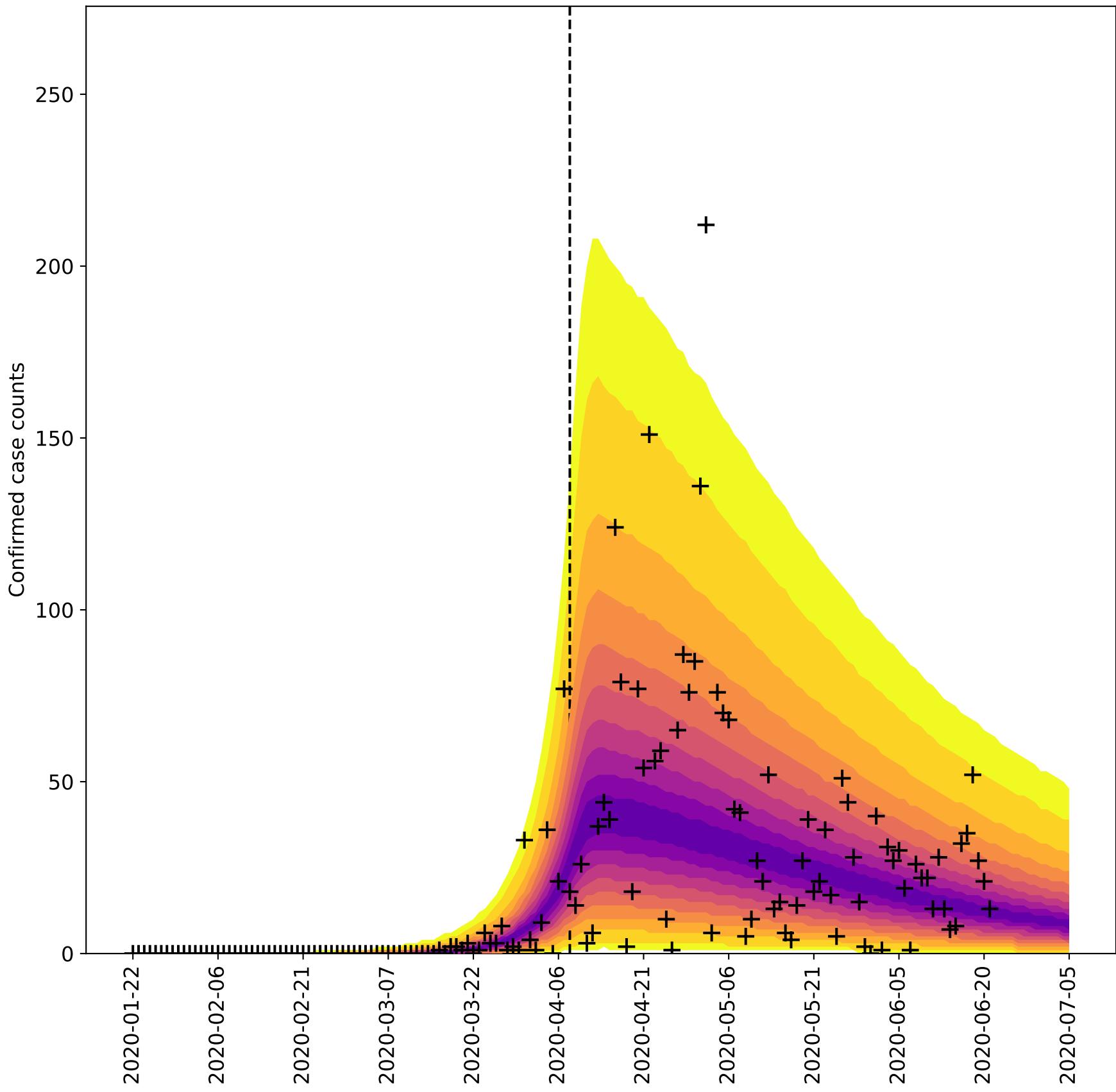
Elkhart-Goshen, IN



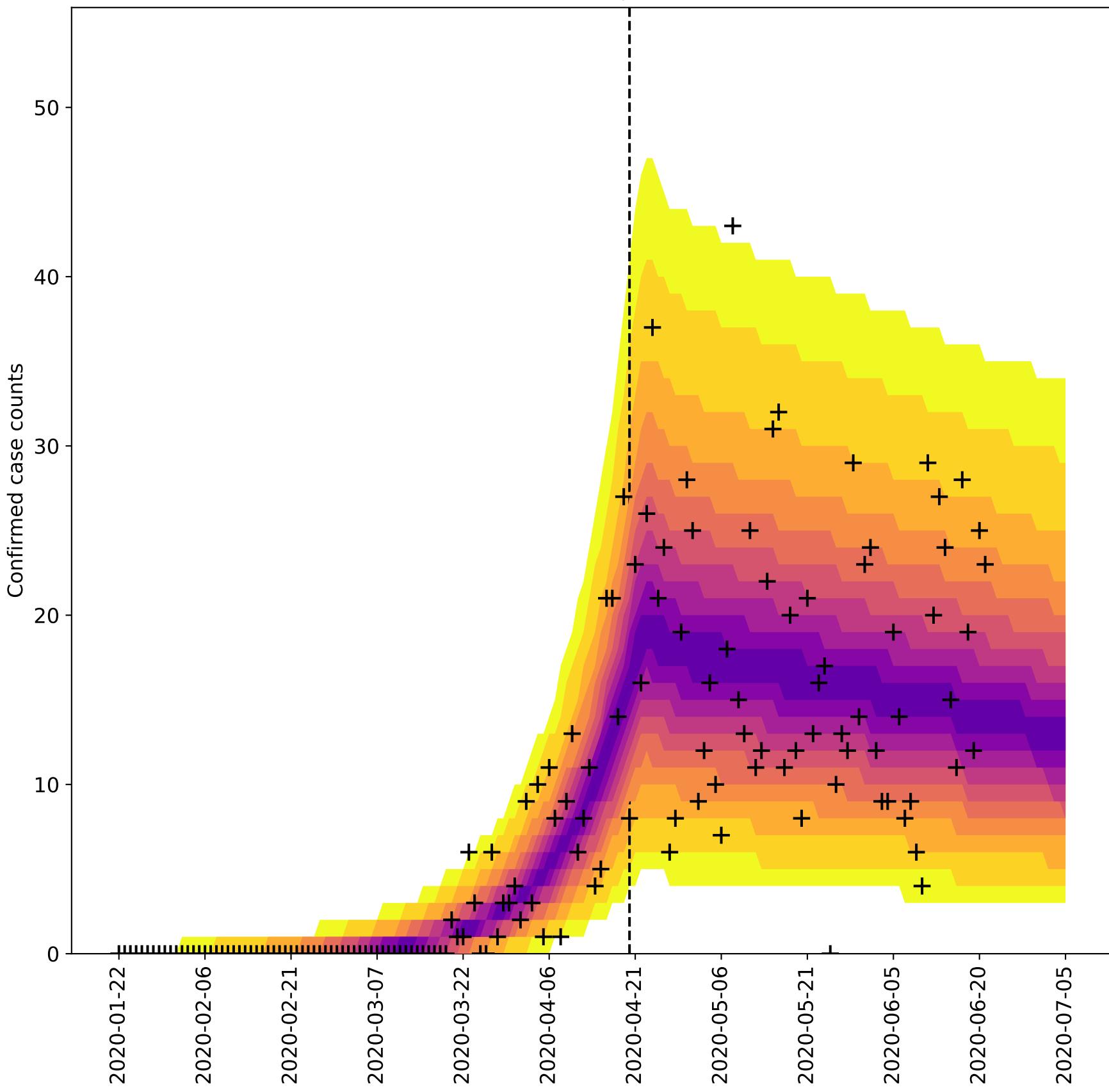
Yuma, AZ



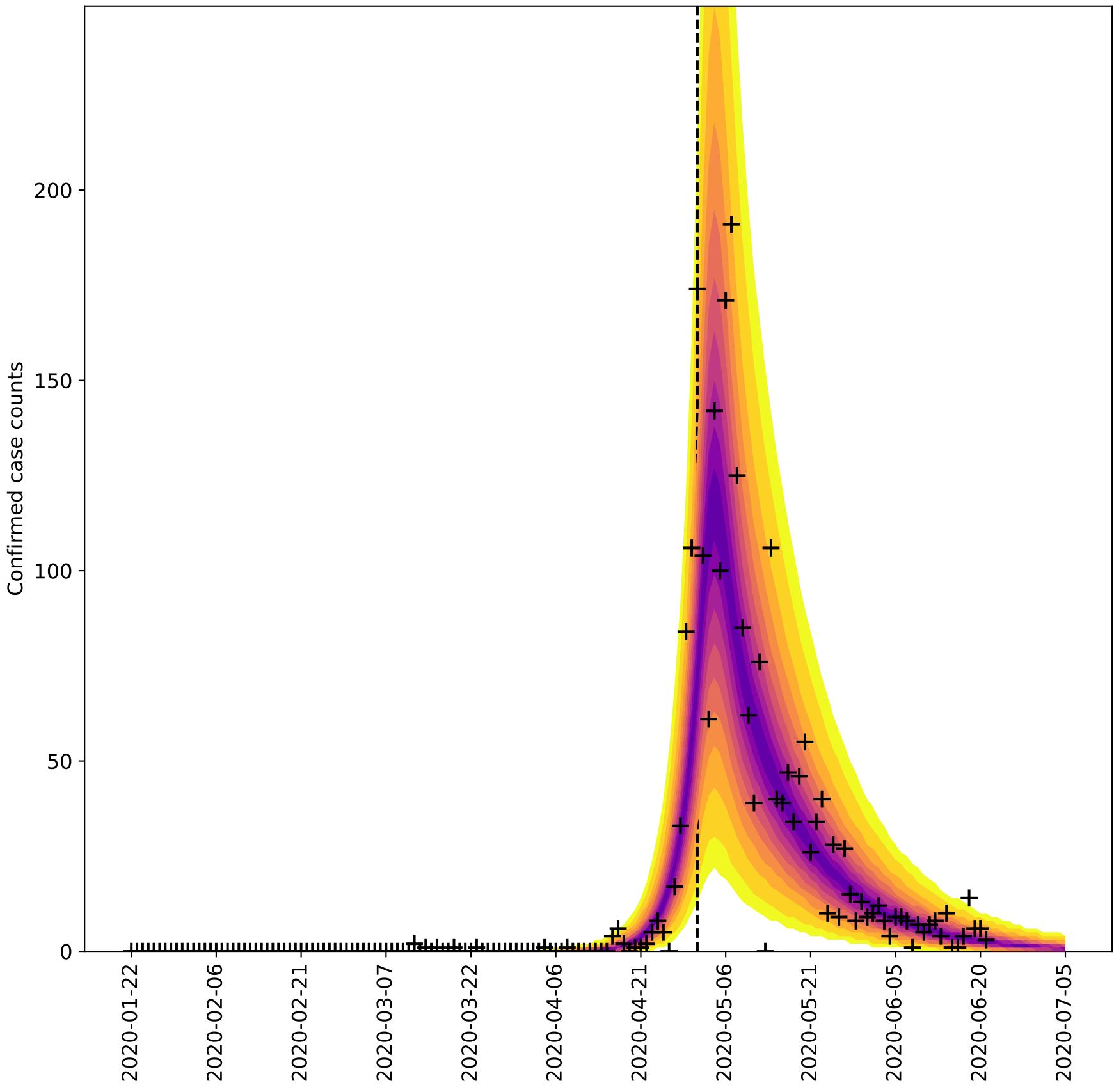
Gainesville, GA



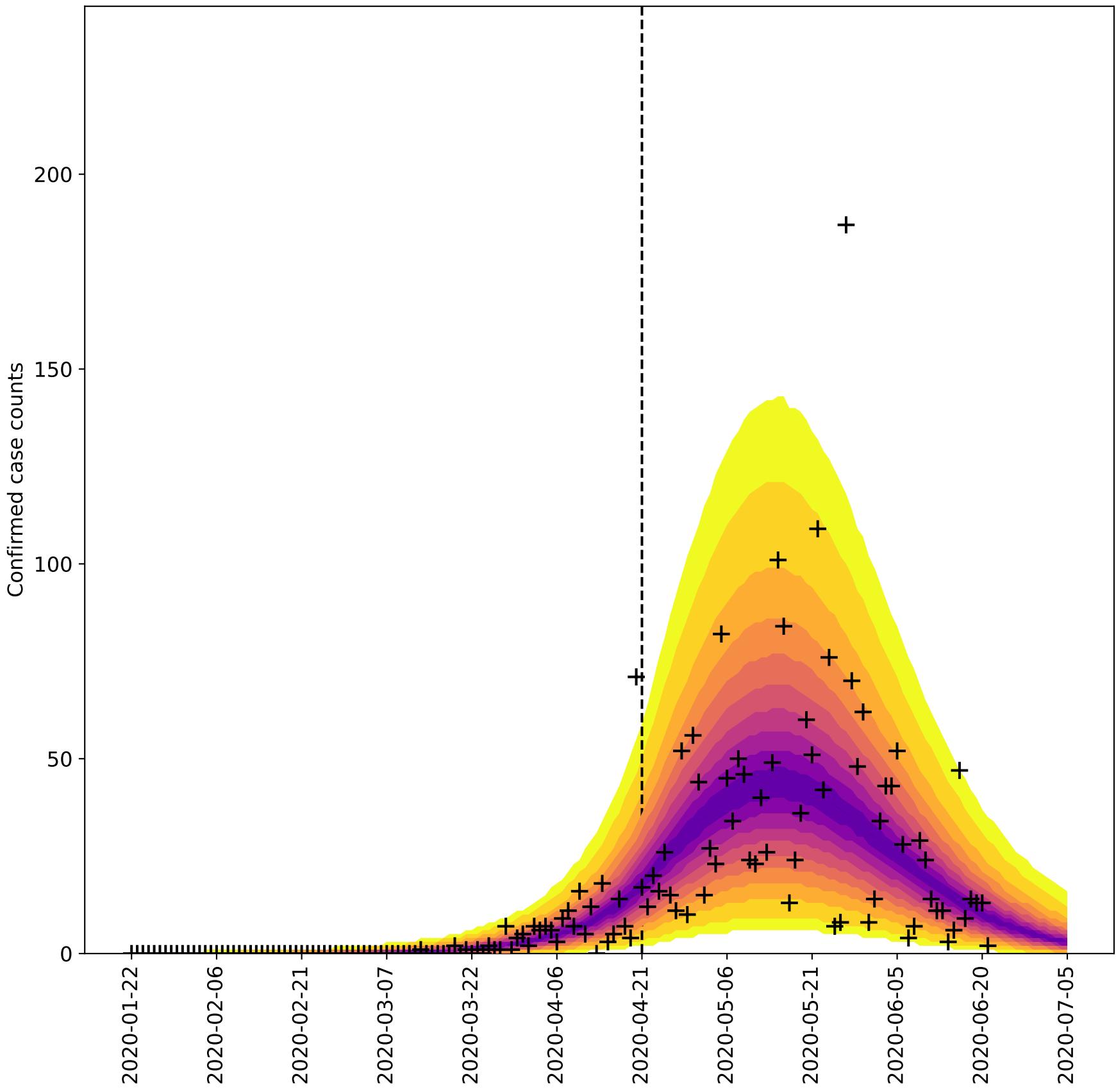
Florence, SC



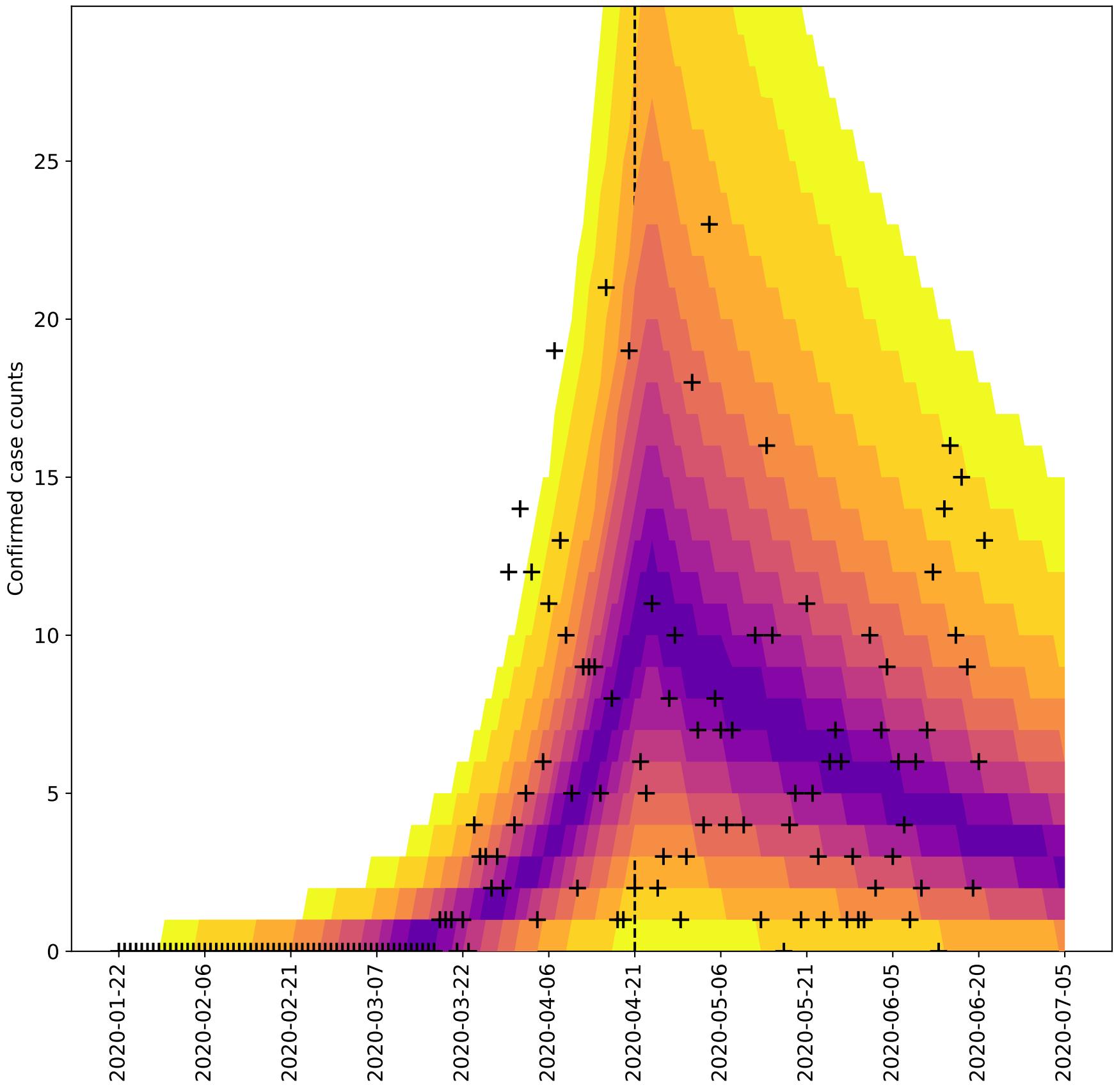
St. Cloud, MN



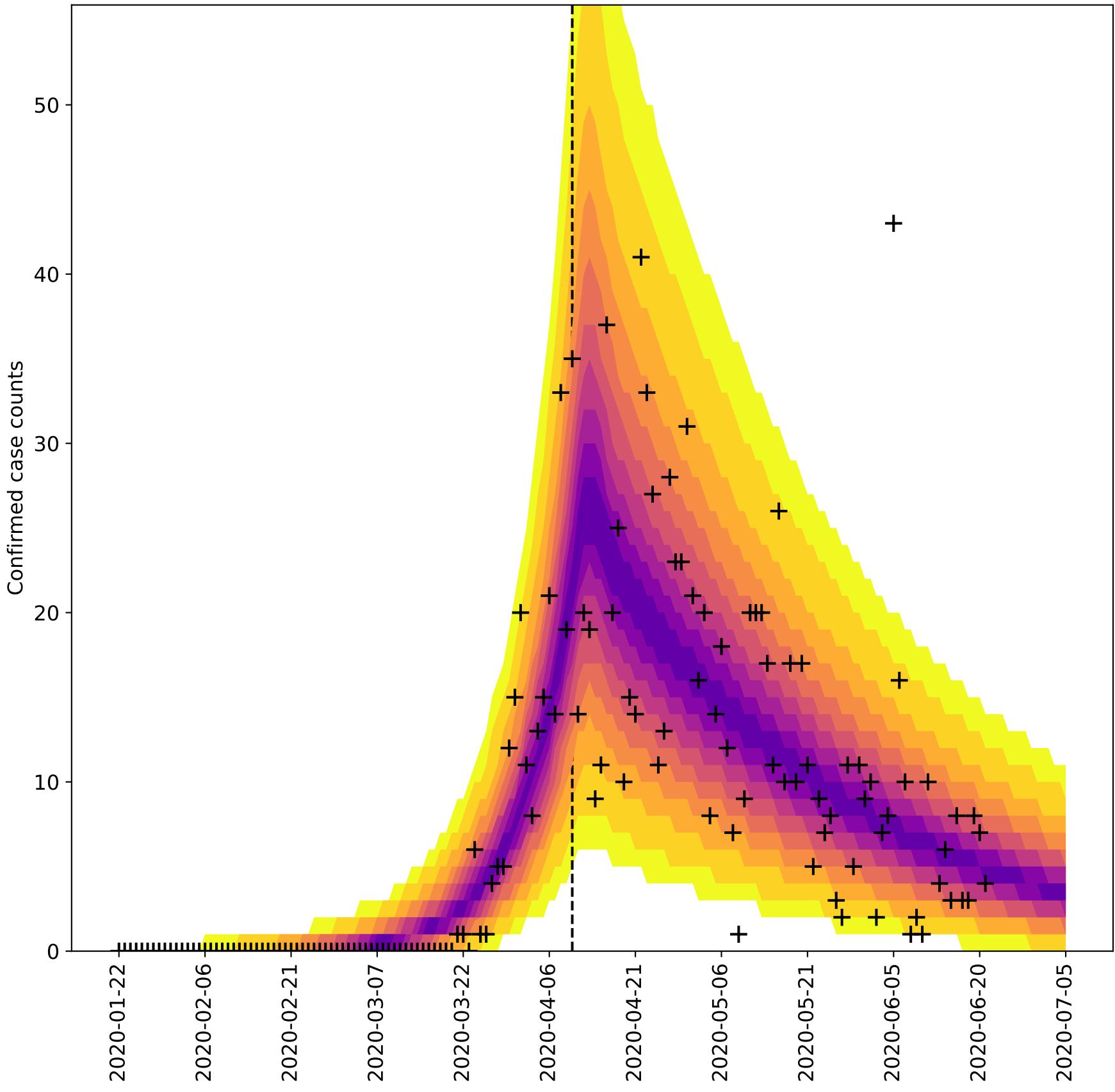
Racine, WI



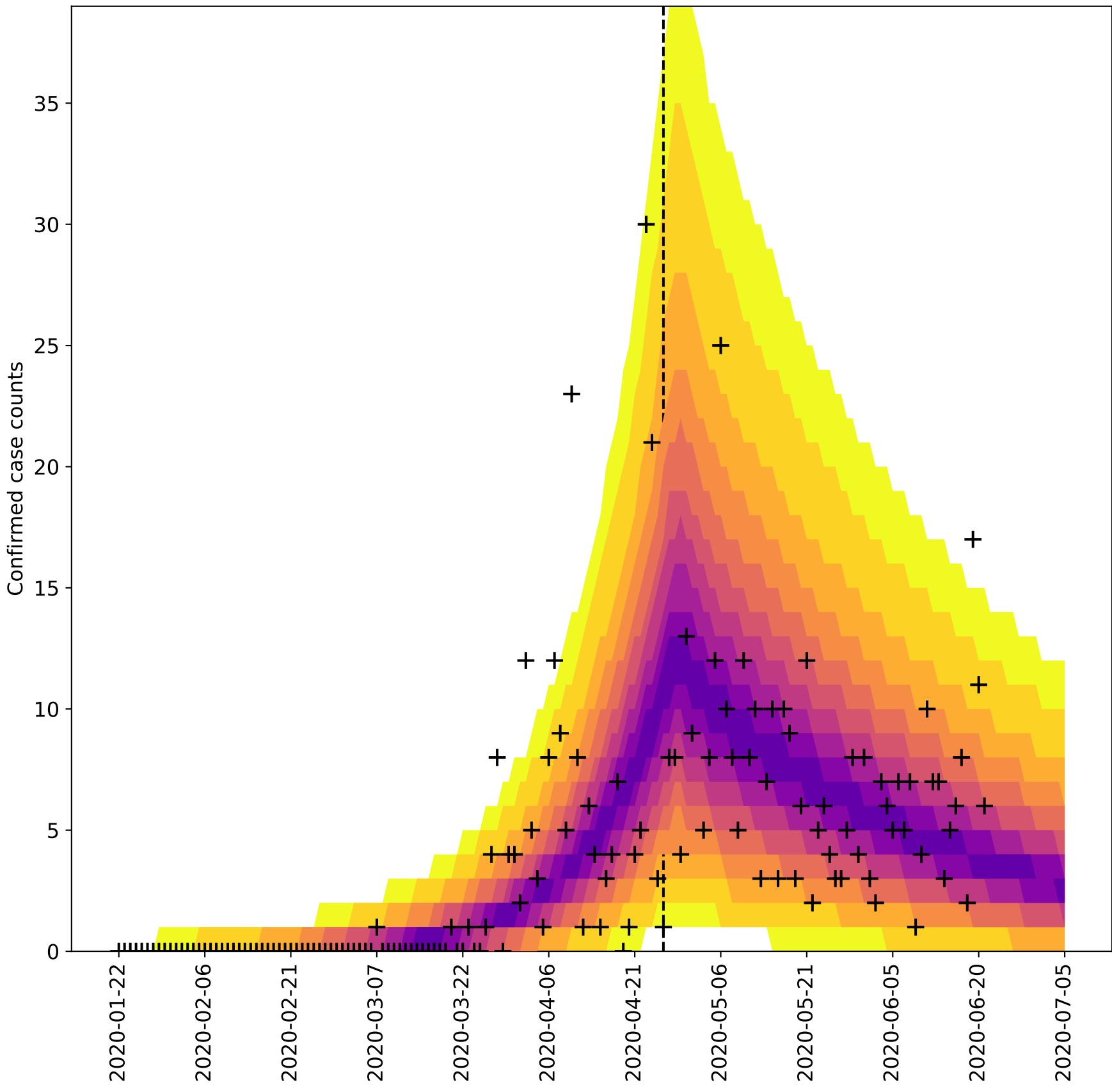
Warner Robins, GA



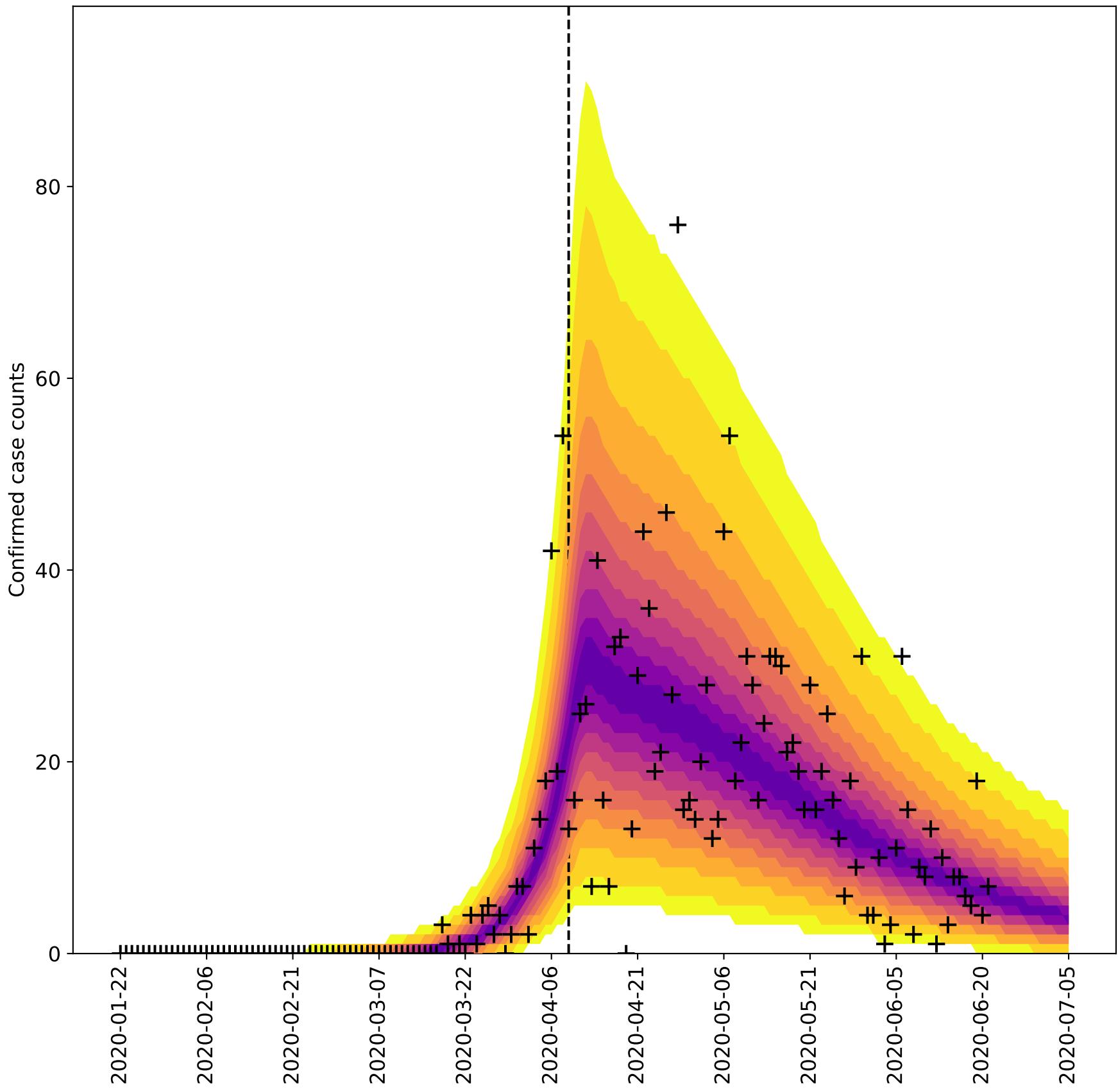
Saginaw, MI



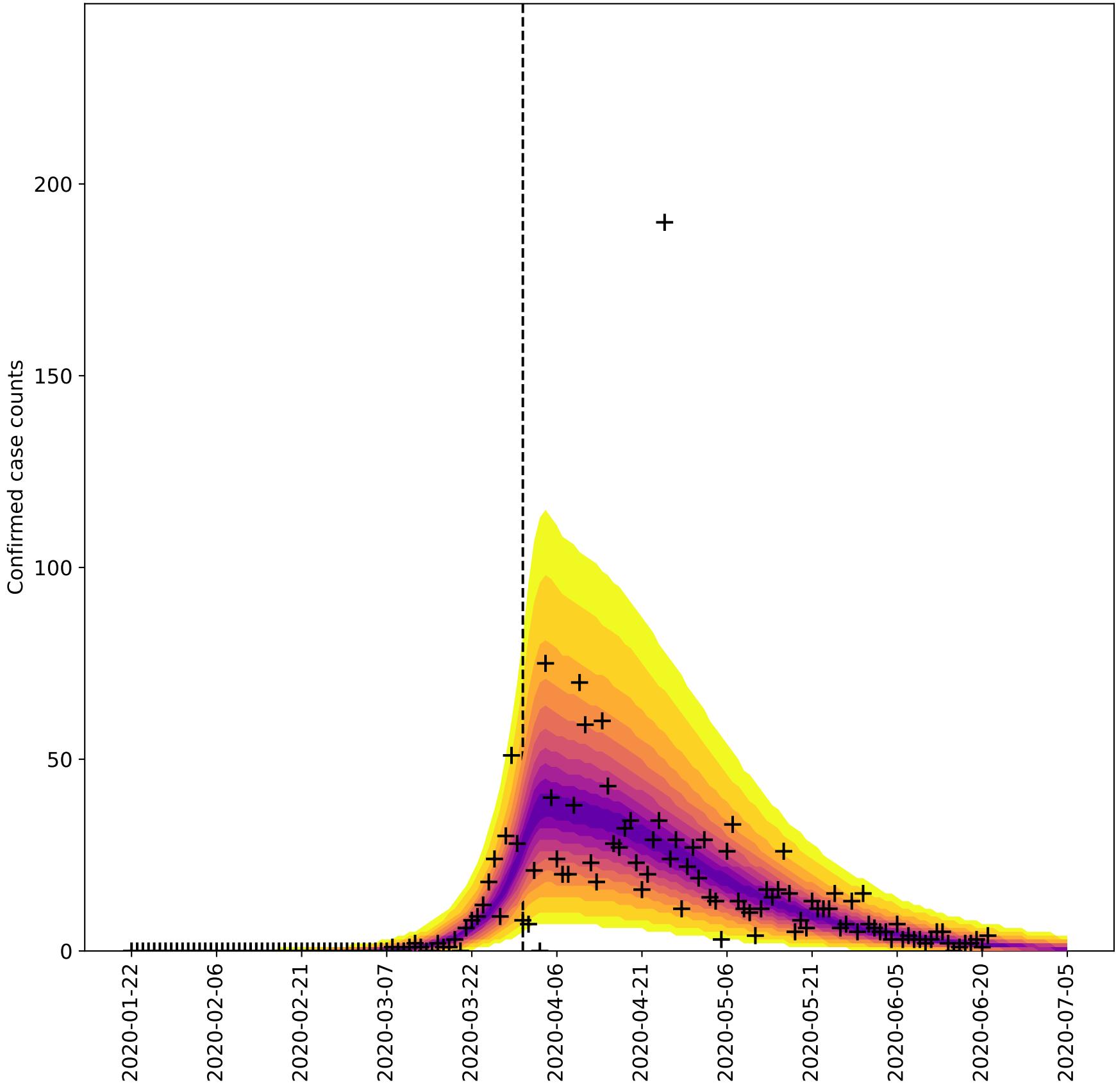
Punta Gorda, FL



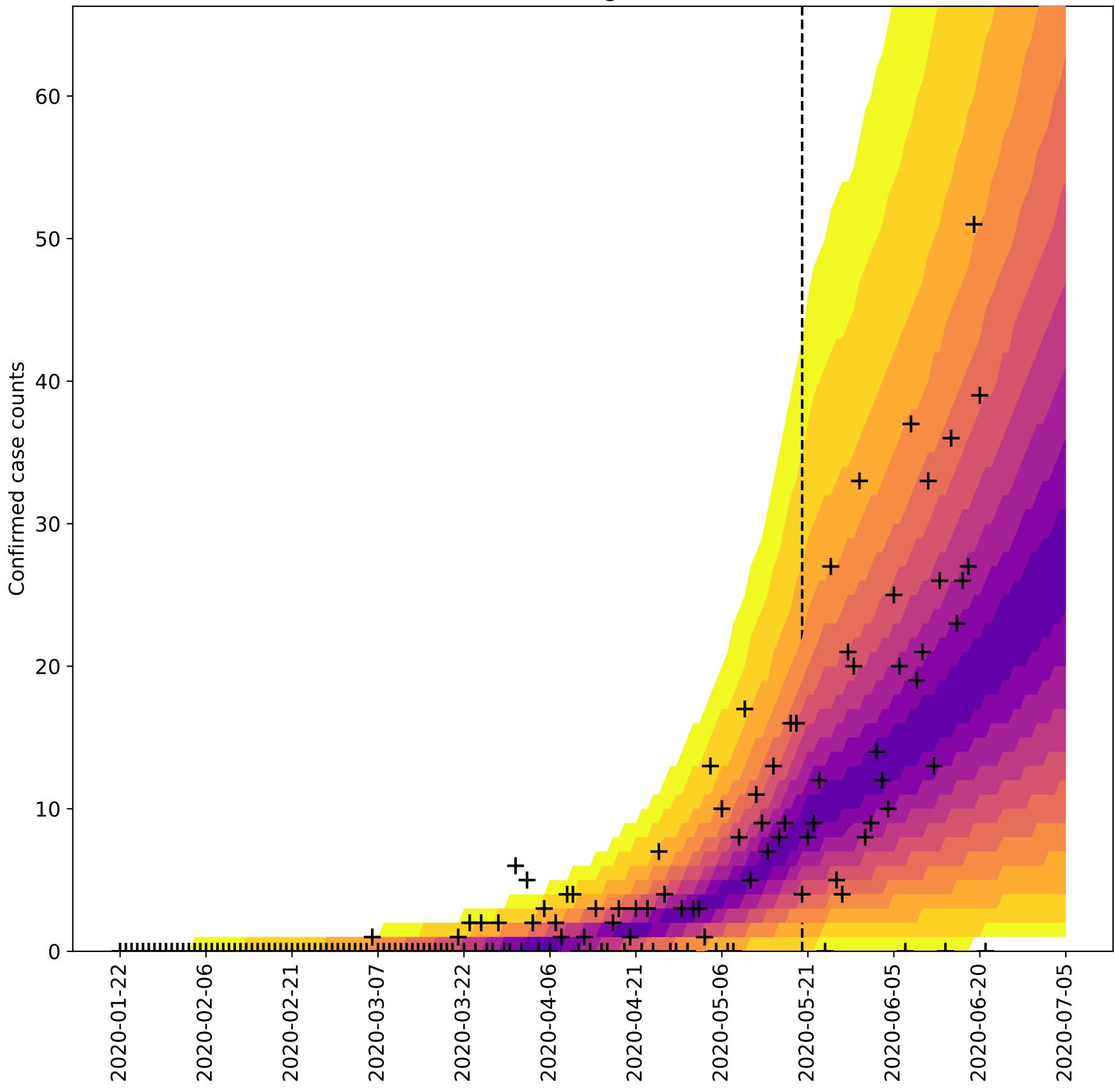
Dover, DE



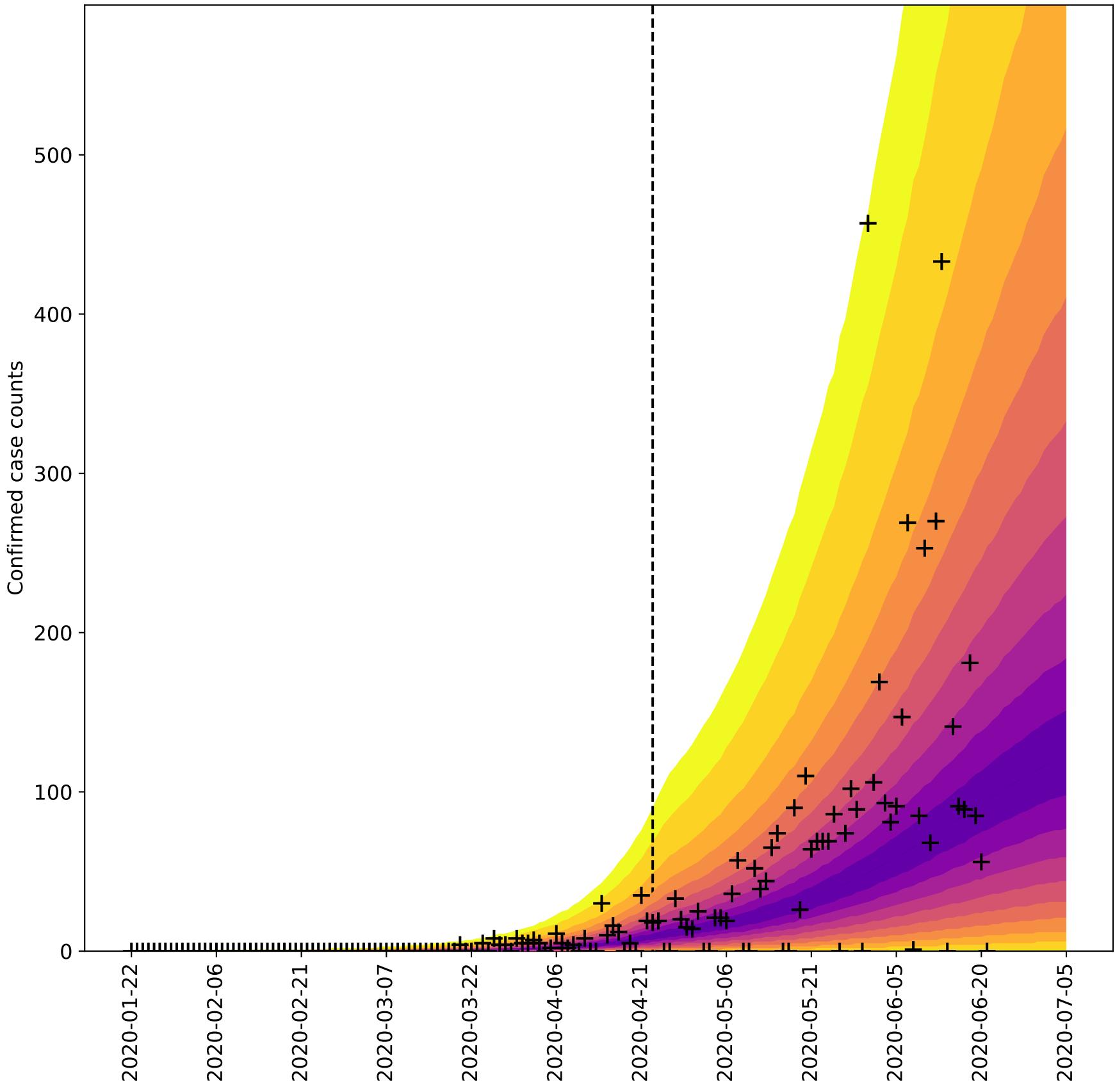
Kingston, NY



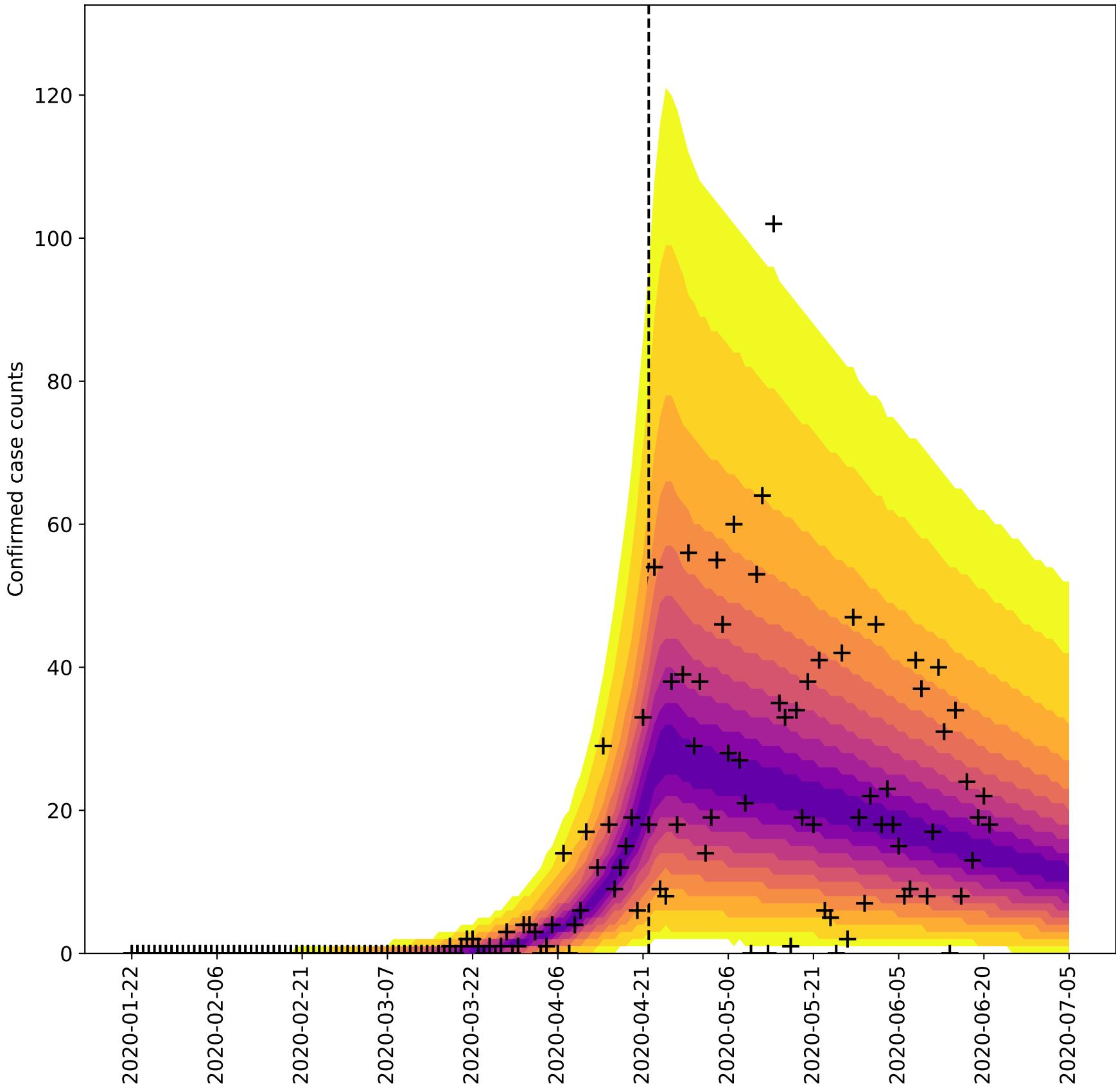
St. George, UT



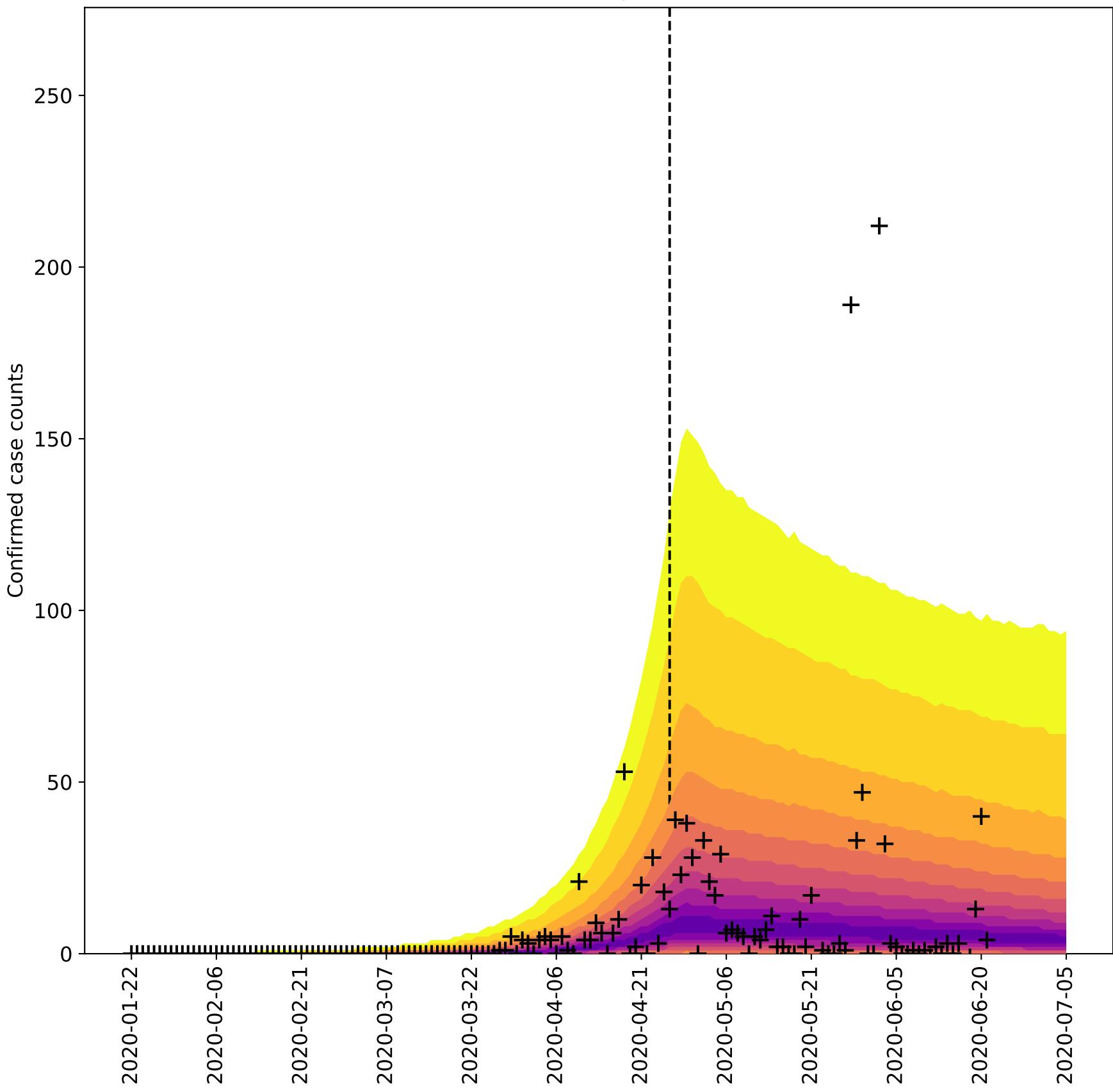
El Centro, CA



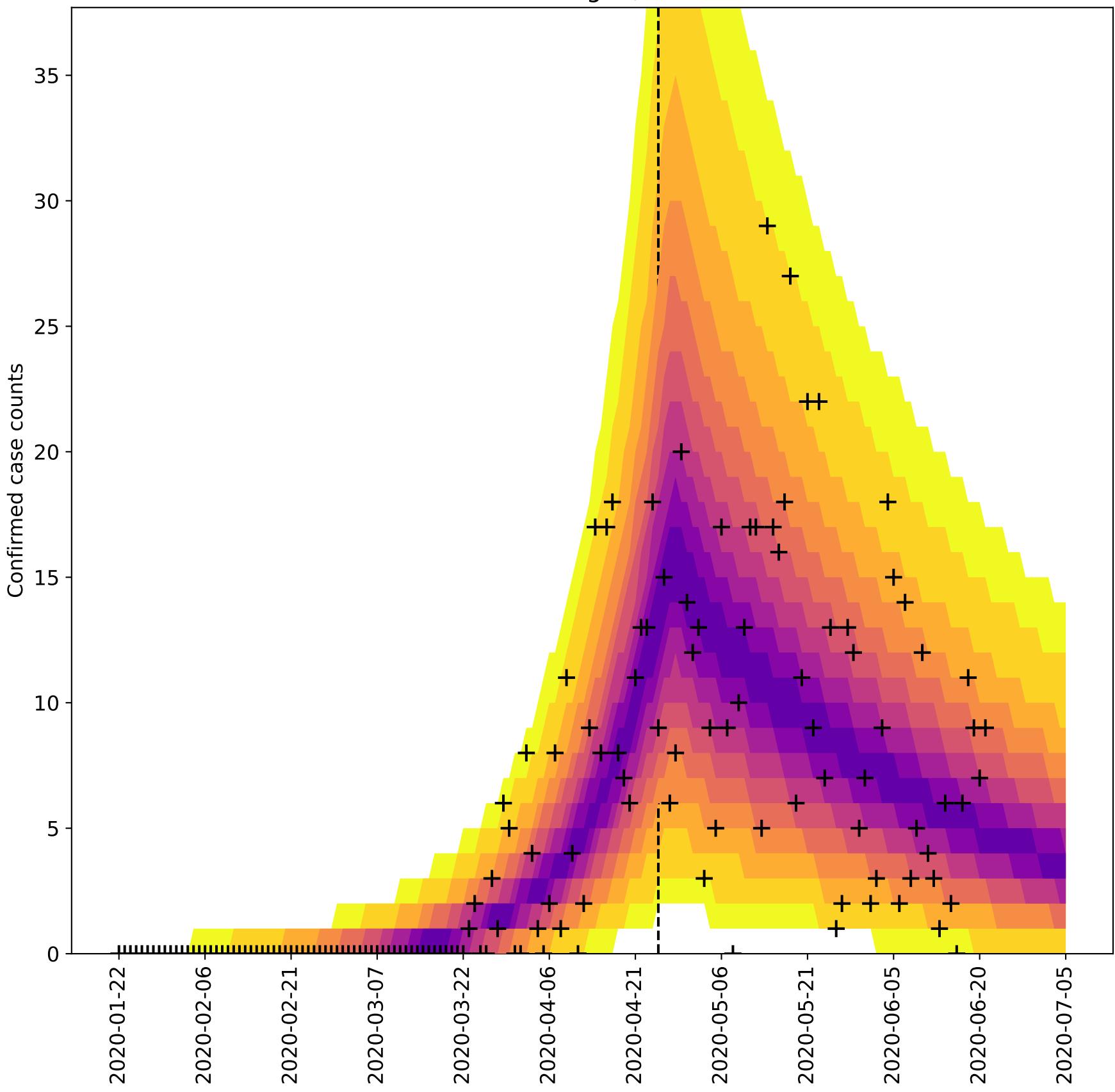
Bowling Green, KY



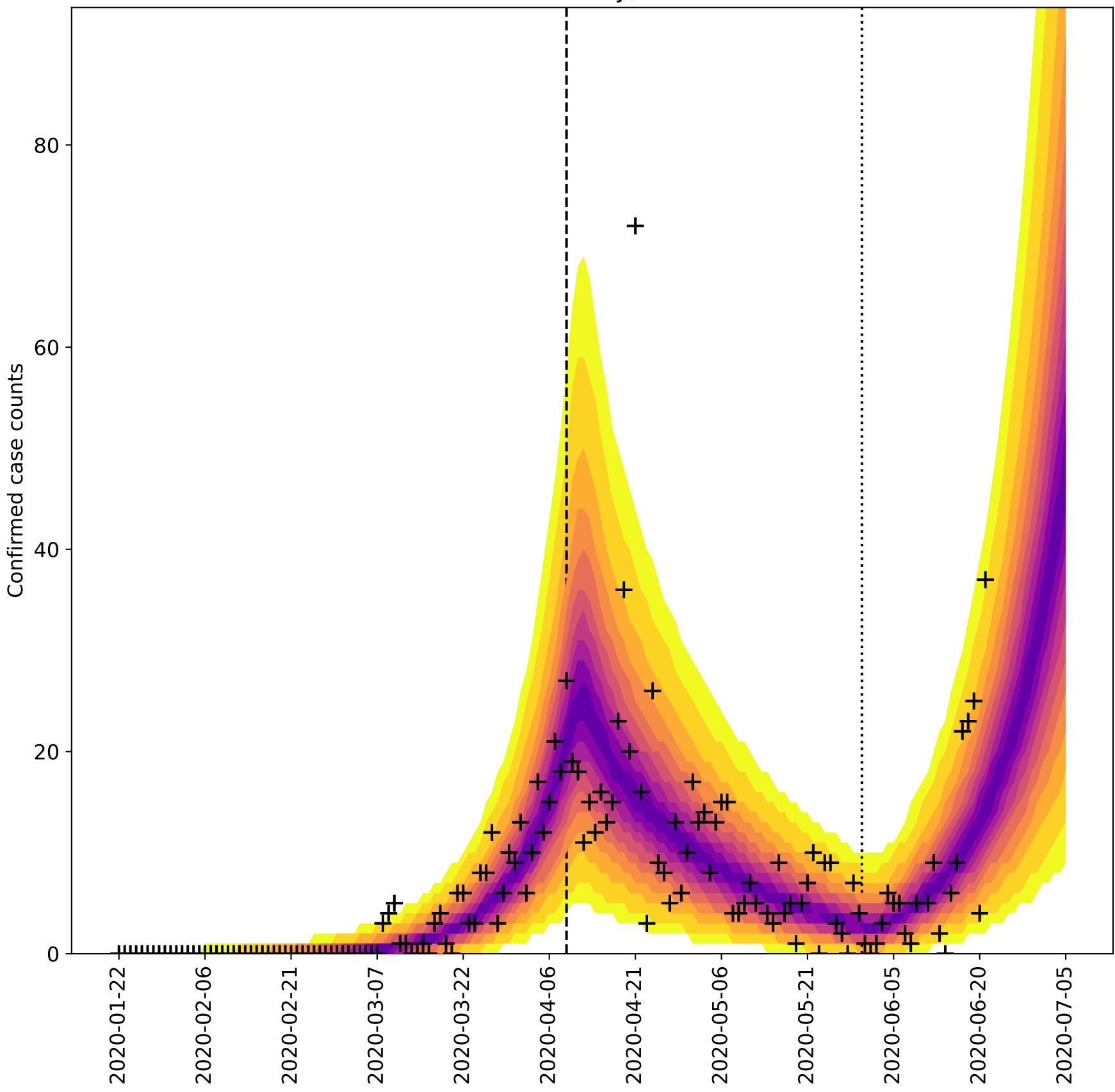
Abilene, TX



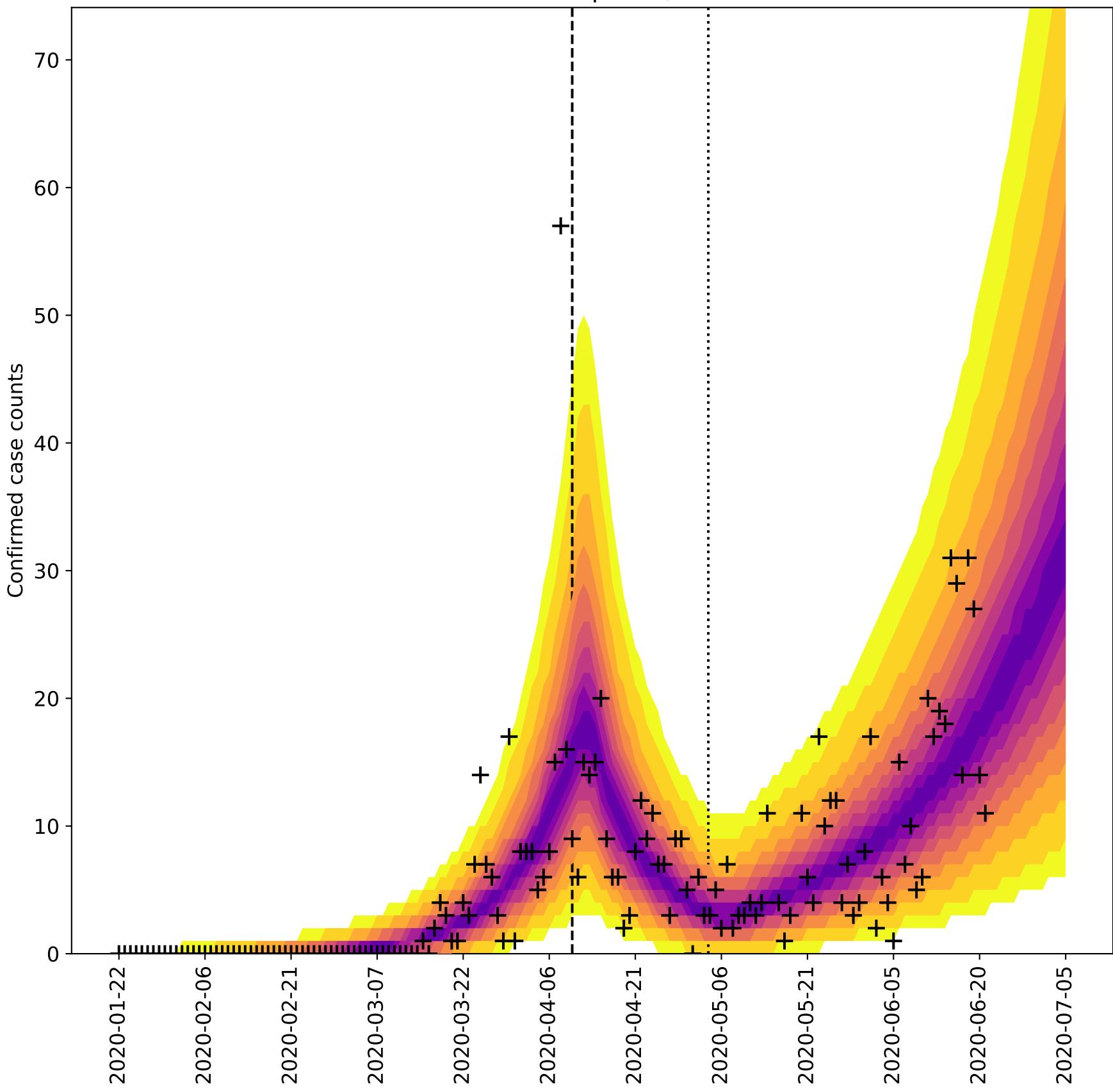
Muskegon, MI



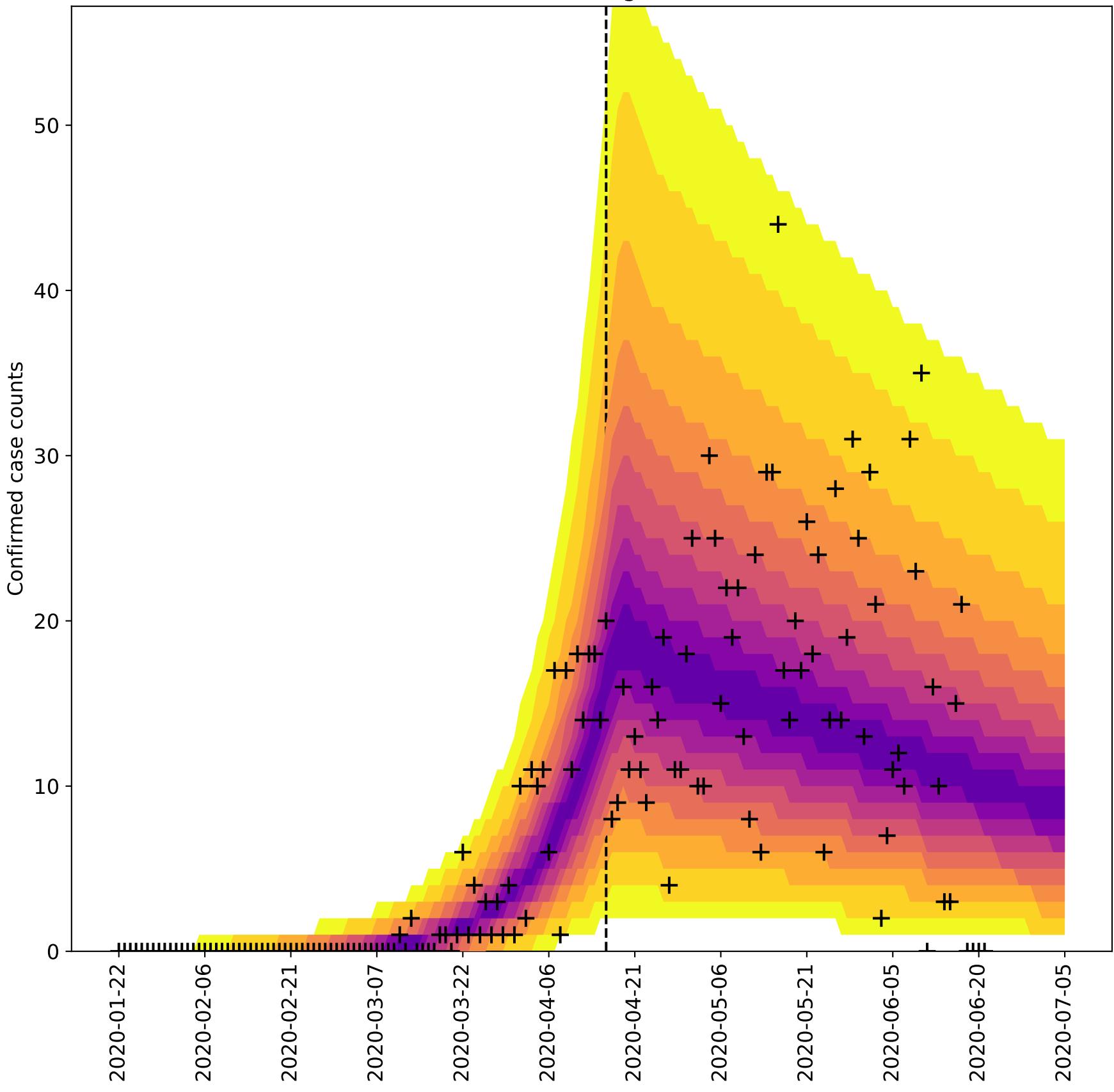
Iowa City, IA



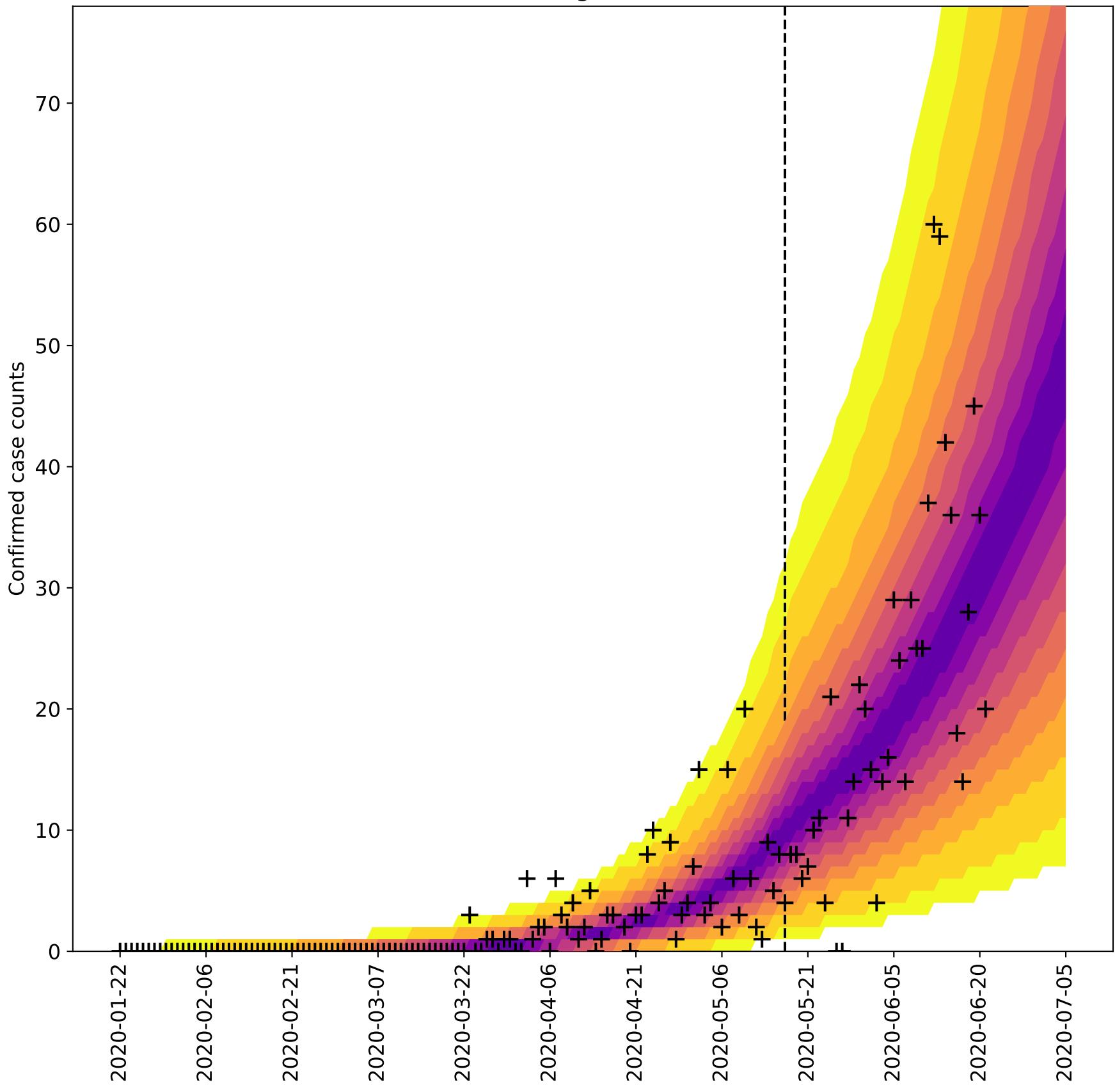
Auburn-Opelika, AL



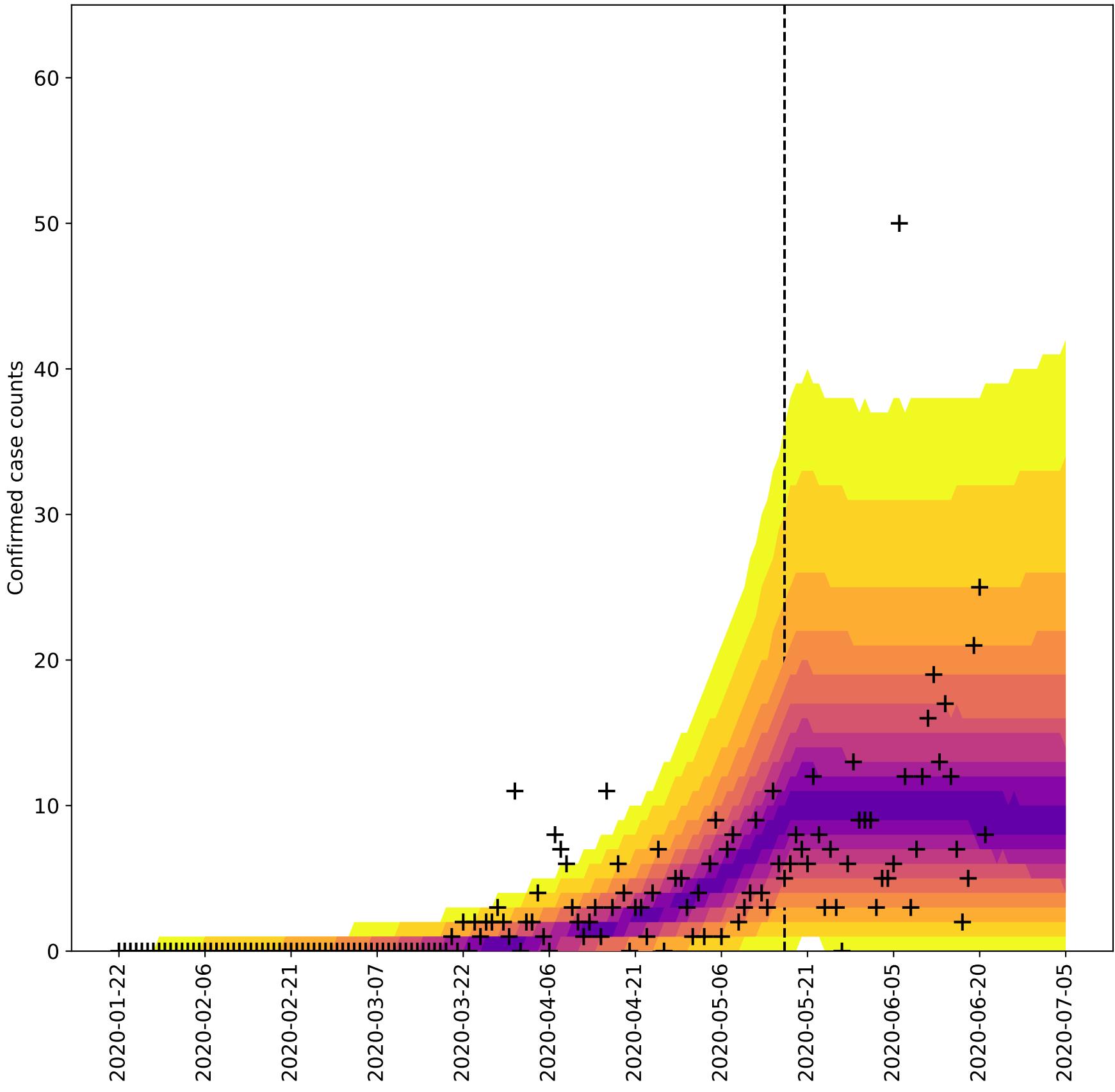
Hattiesburg, MS



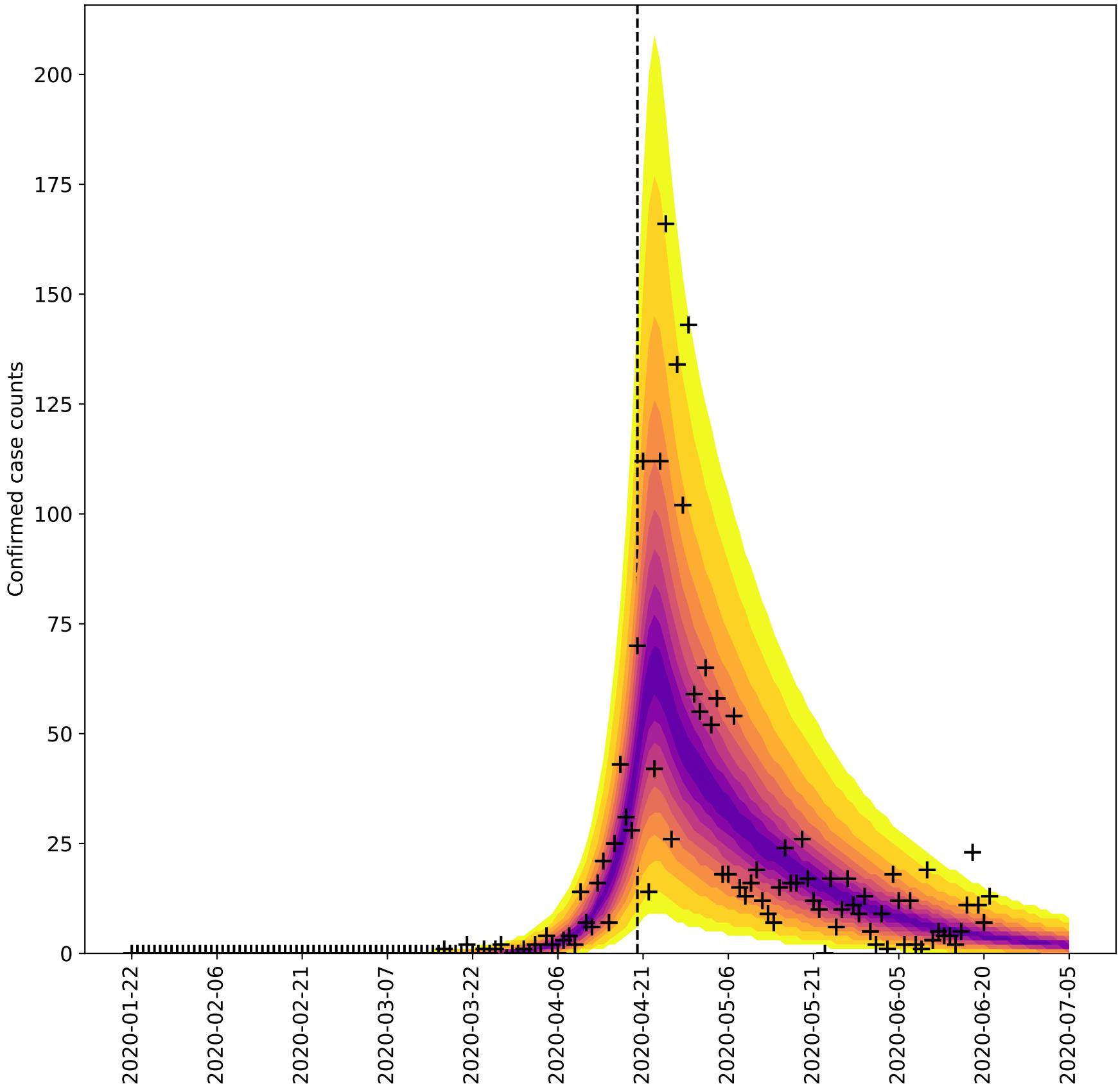
Burlington, NC



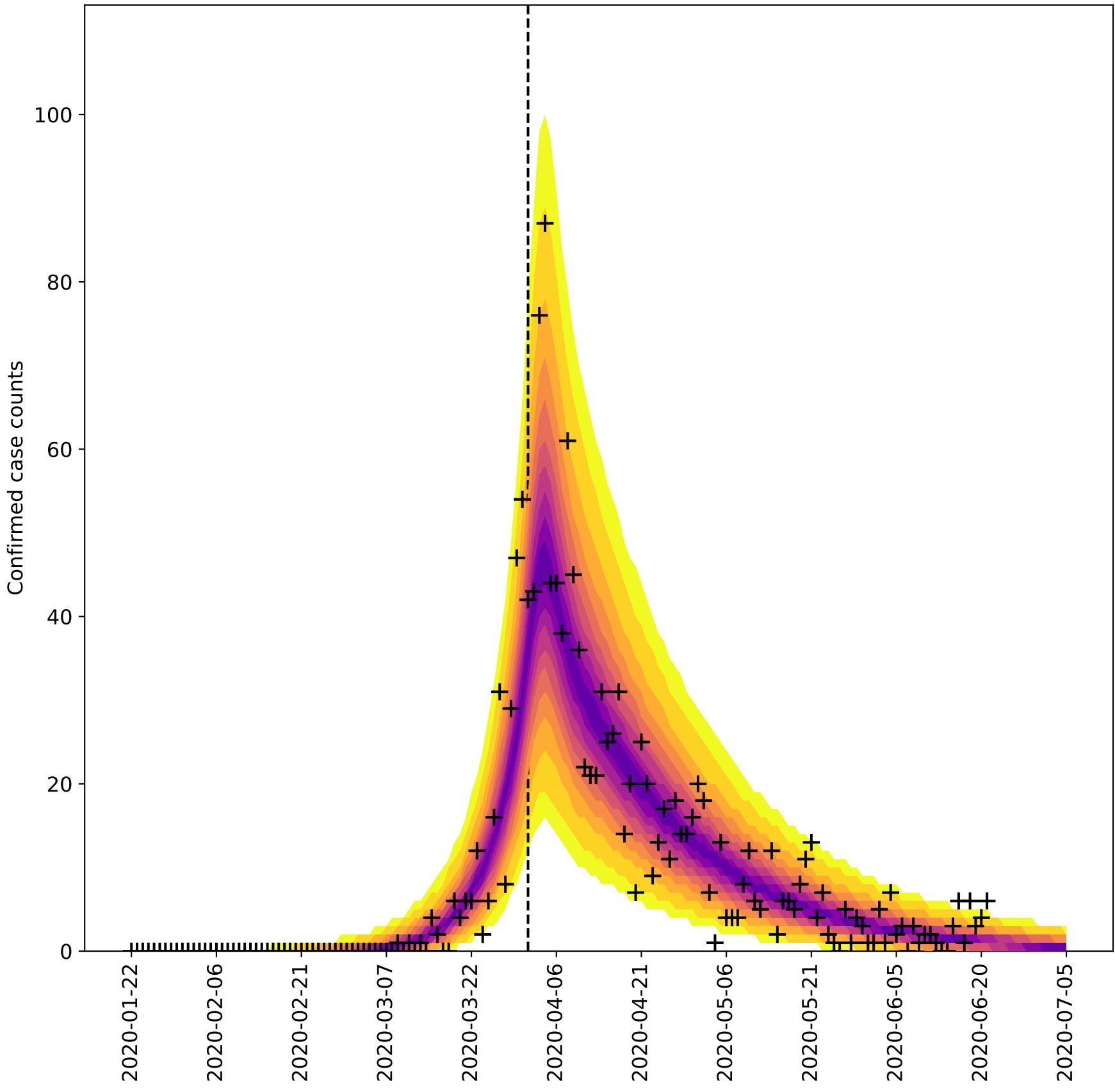
Greenville, NC



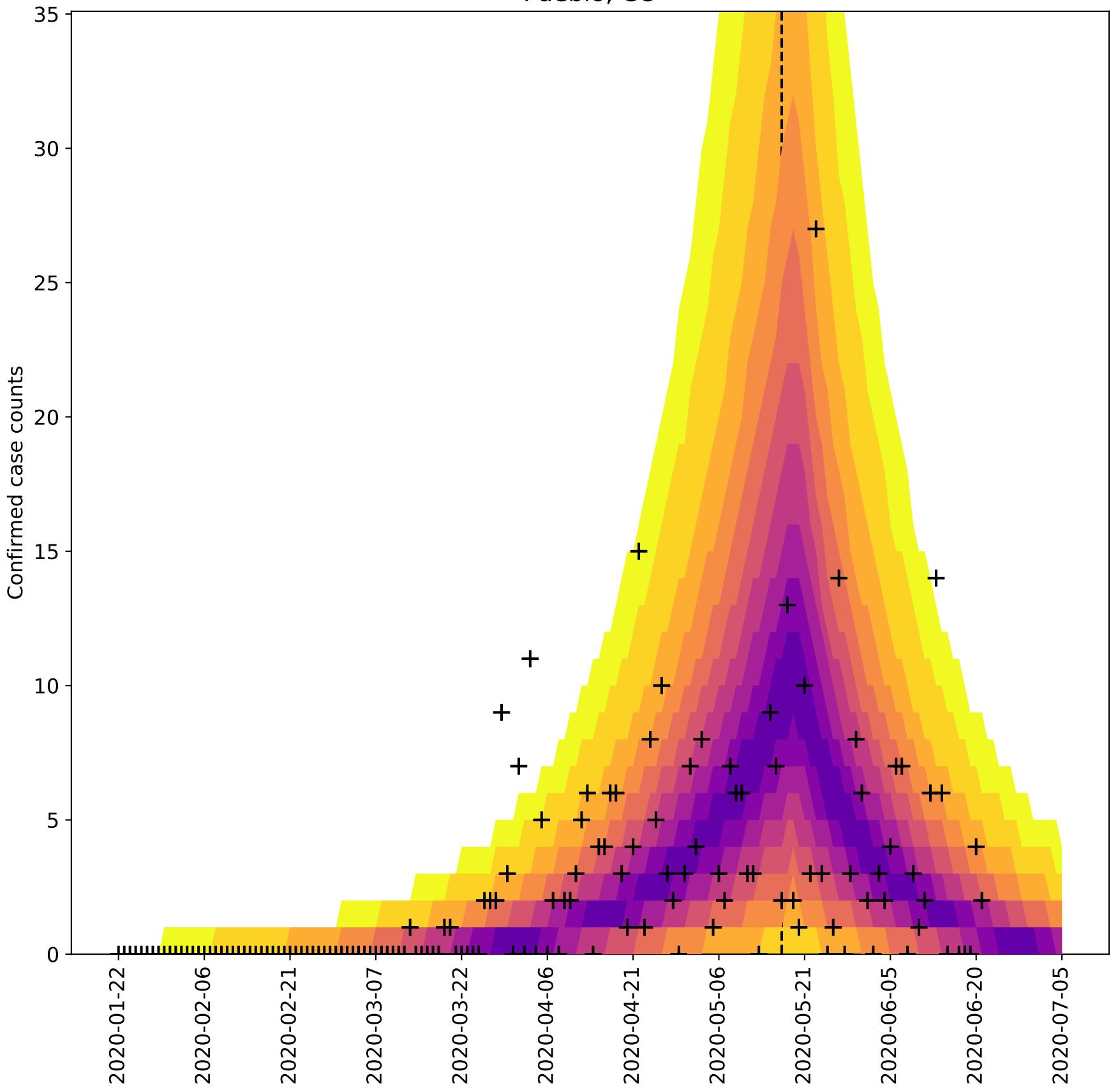
Waterloo-Cedar Falls, IA



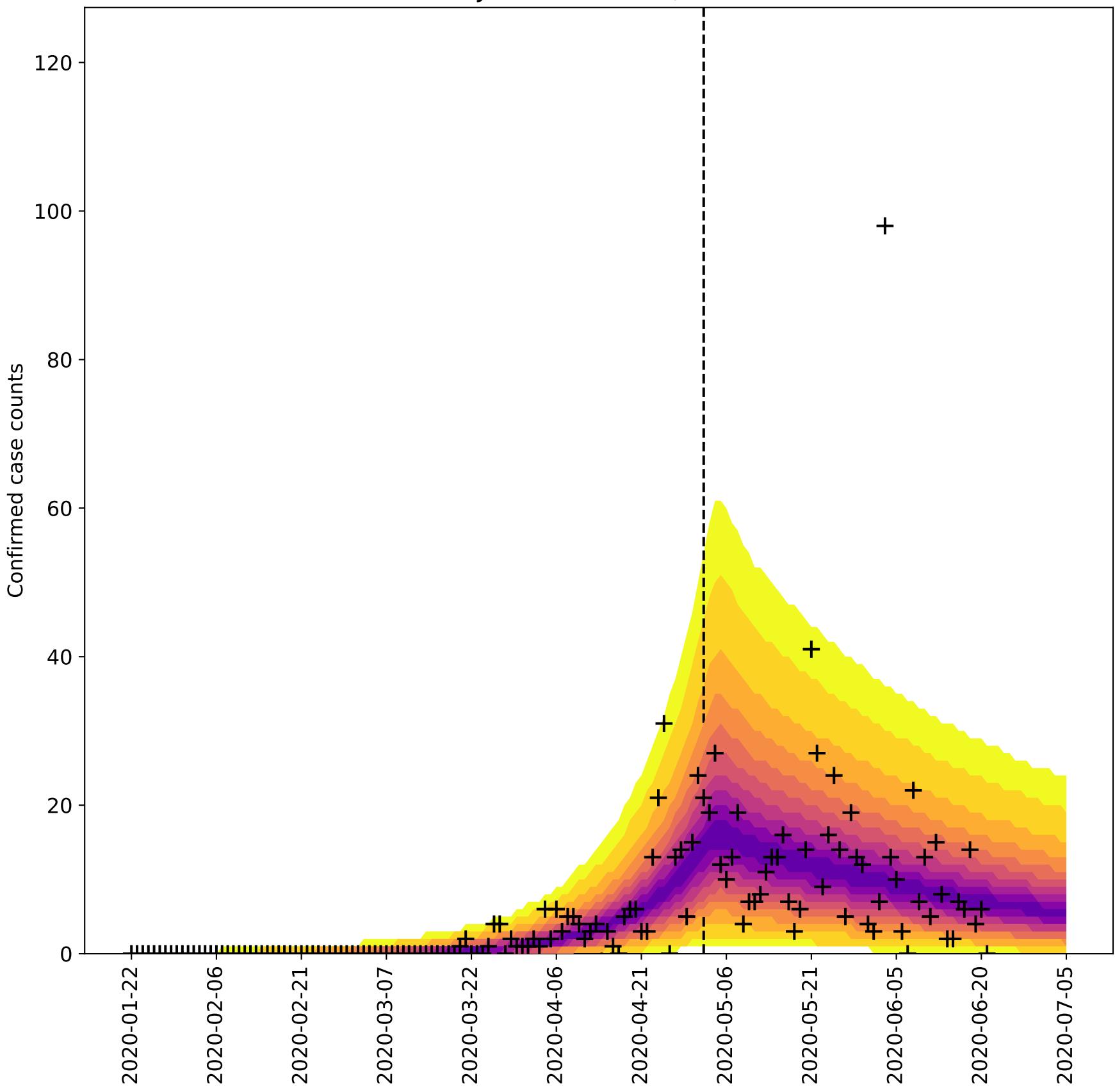
East Stroudsburg, PA



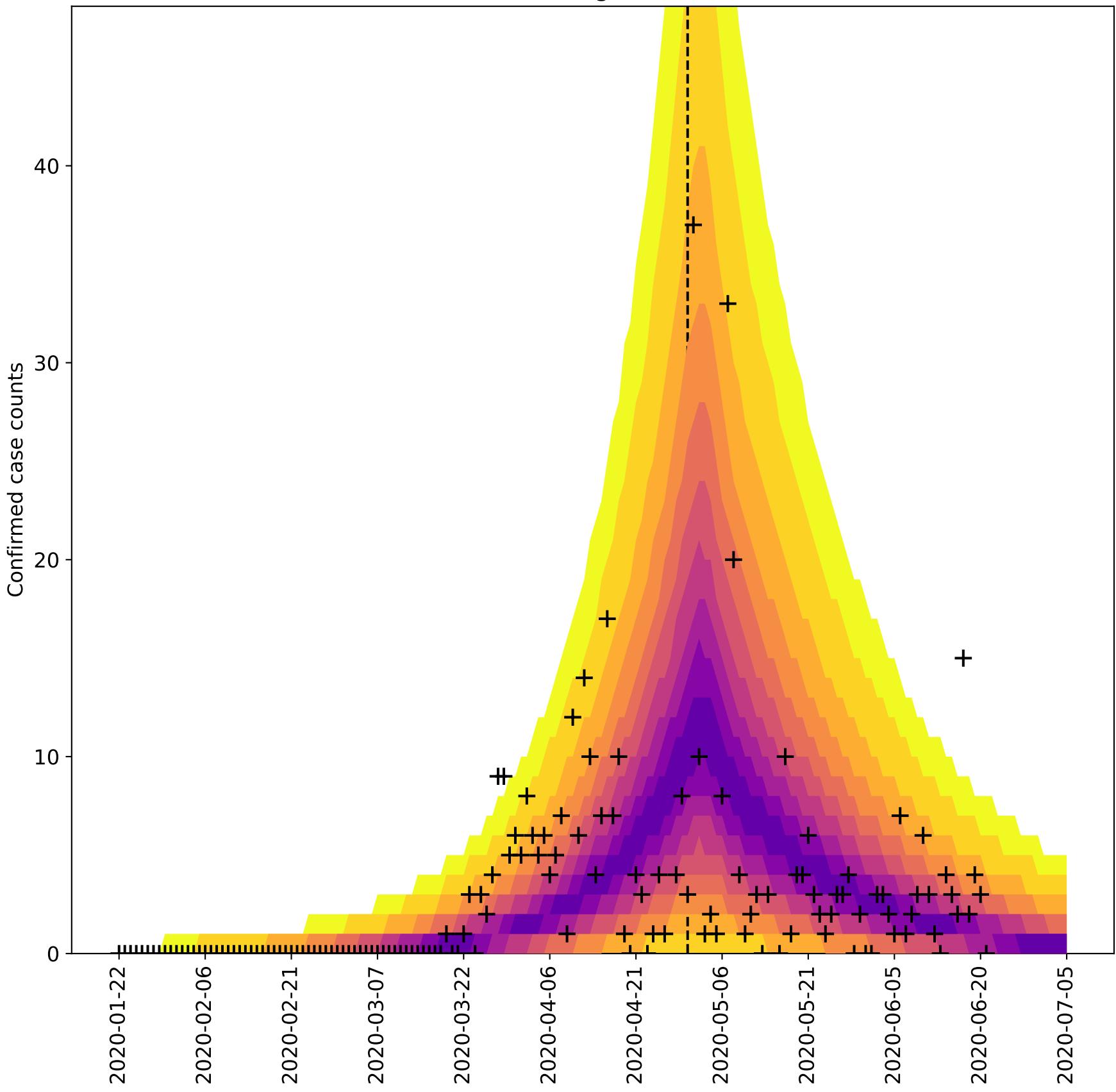
Pueblo, CO



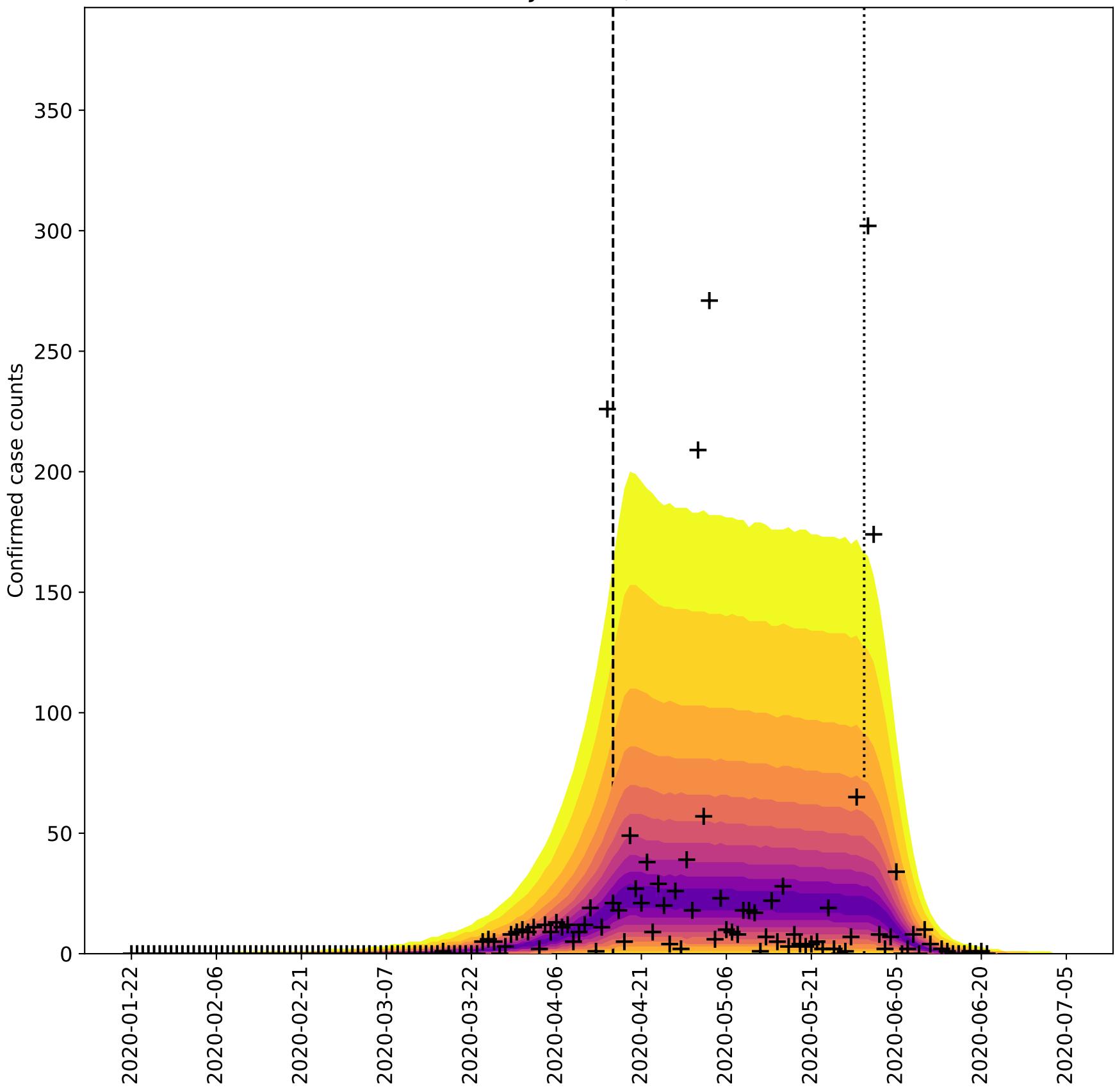
Janesville-Beloit, WI



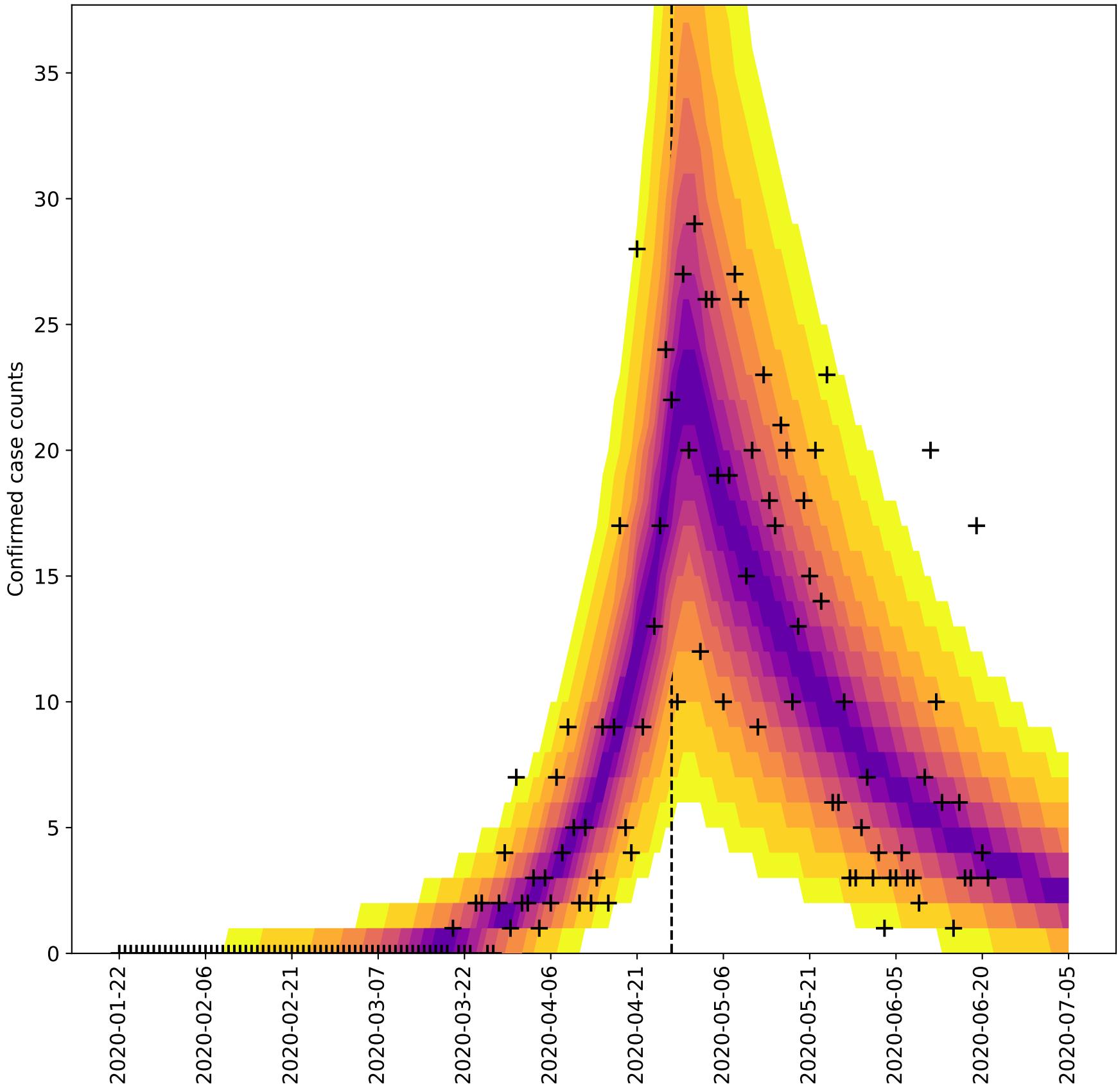
Bloomington, IN



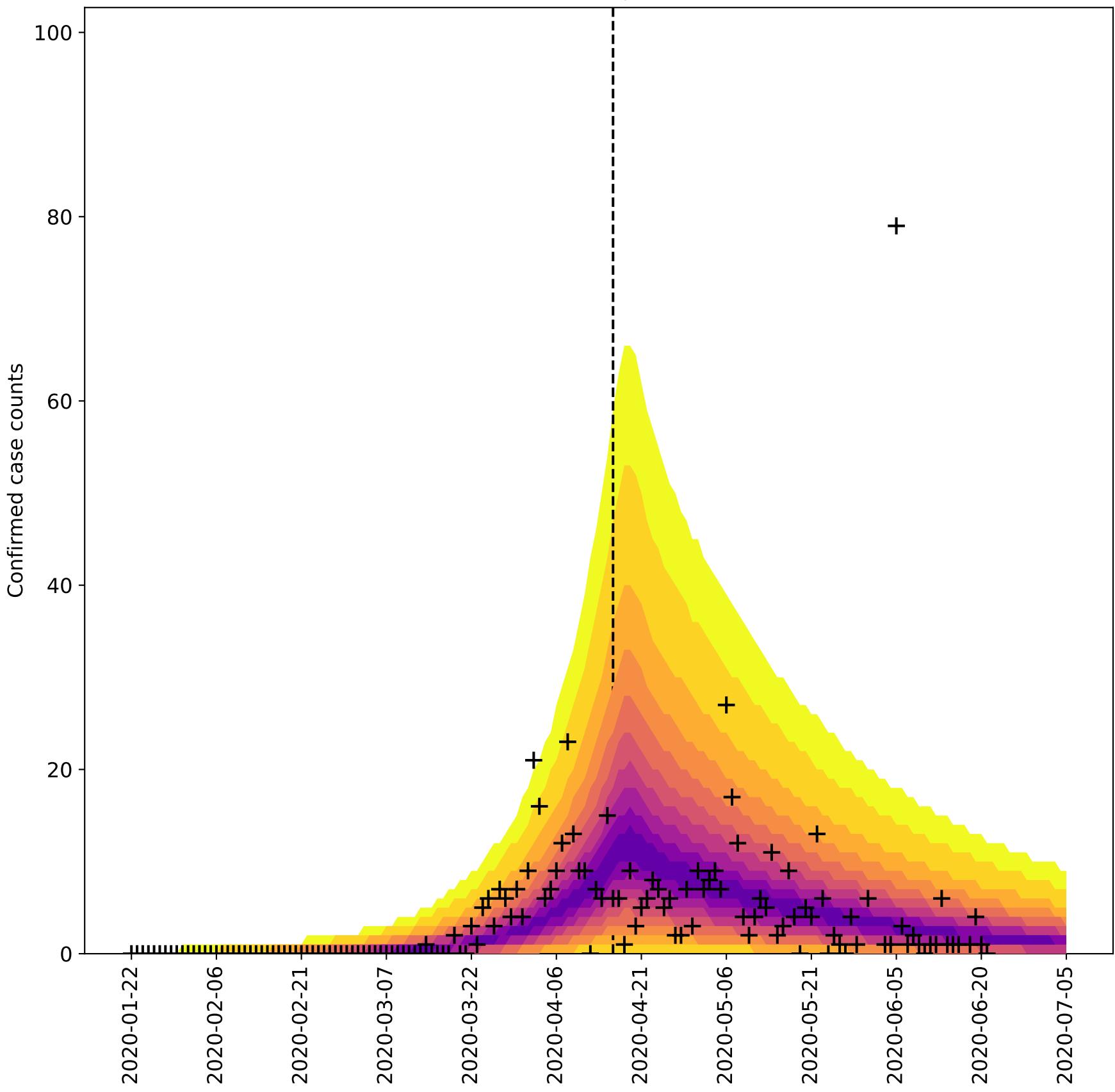
Jackson, MI



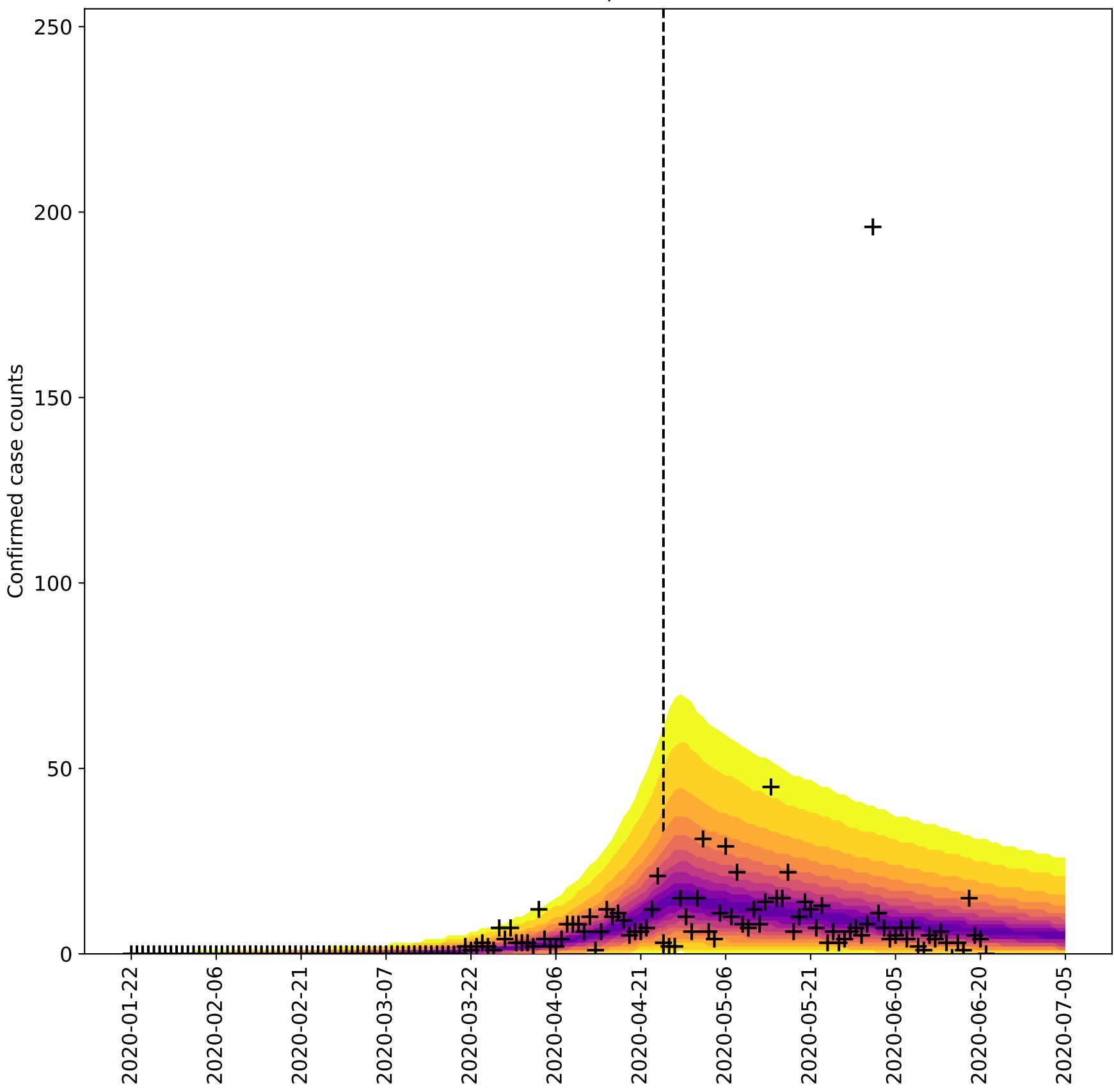
Chambersburg-Waynesboro, PA



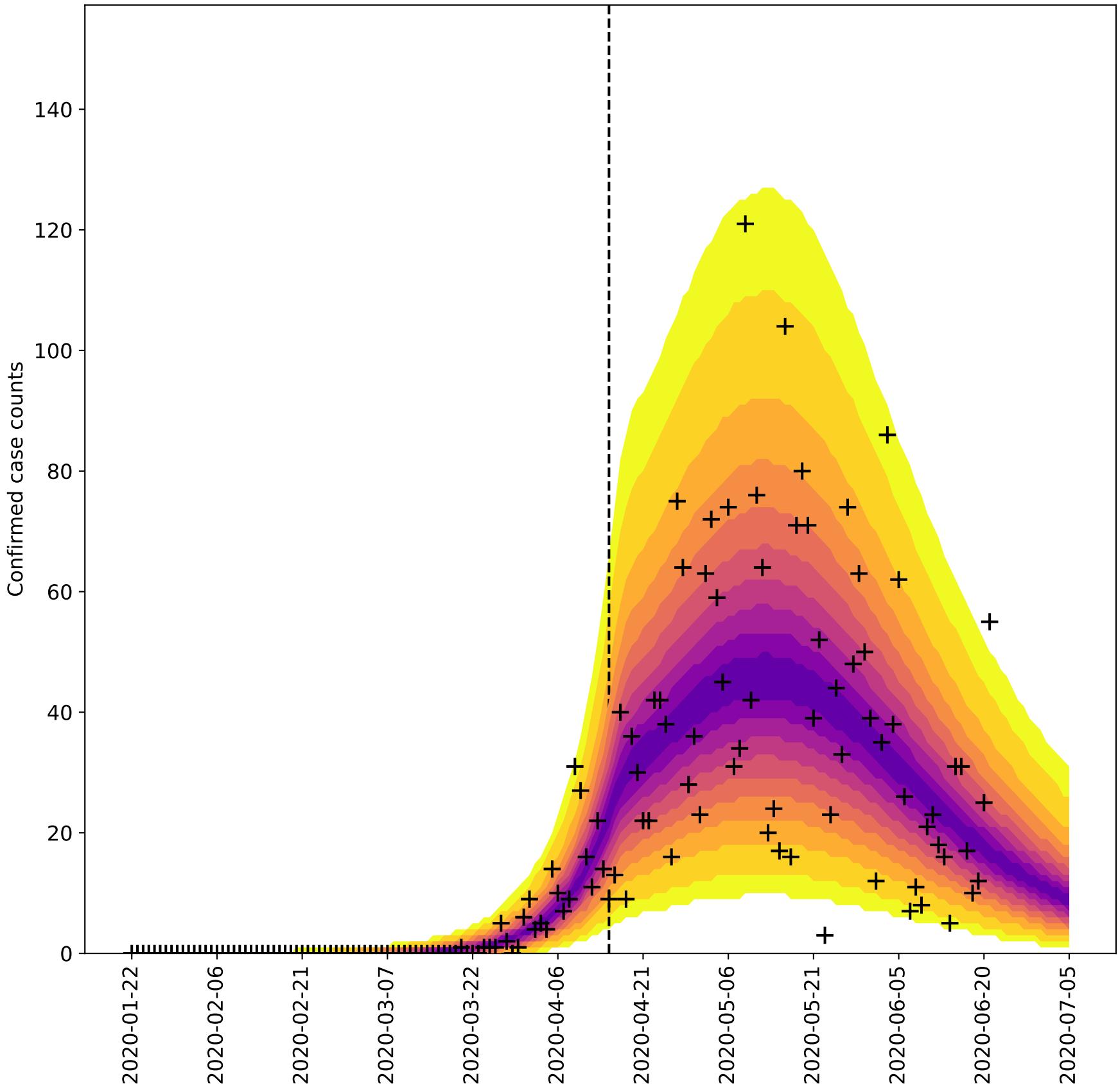
Monroe, MI



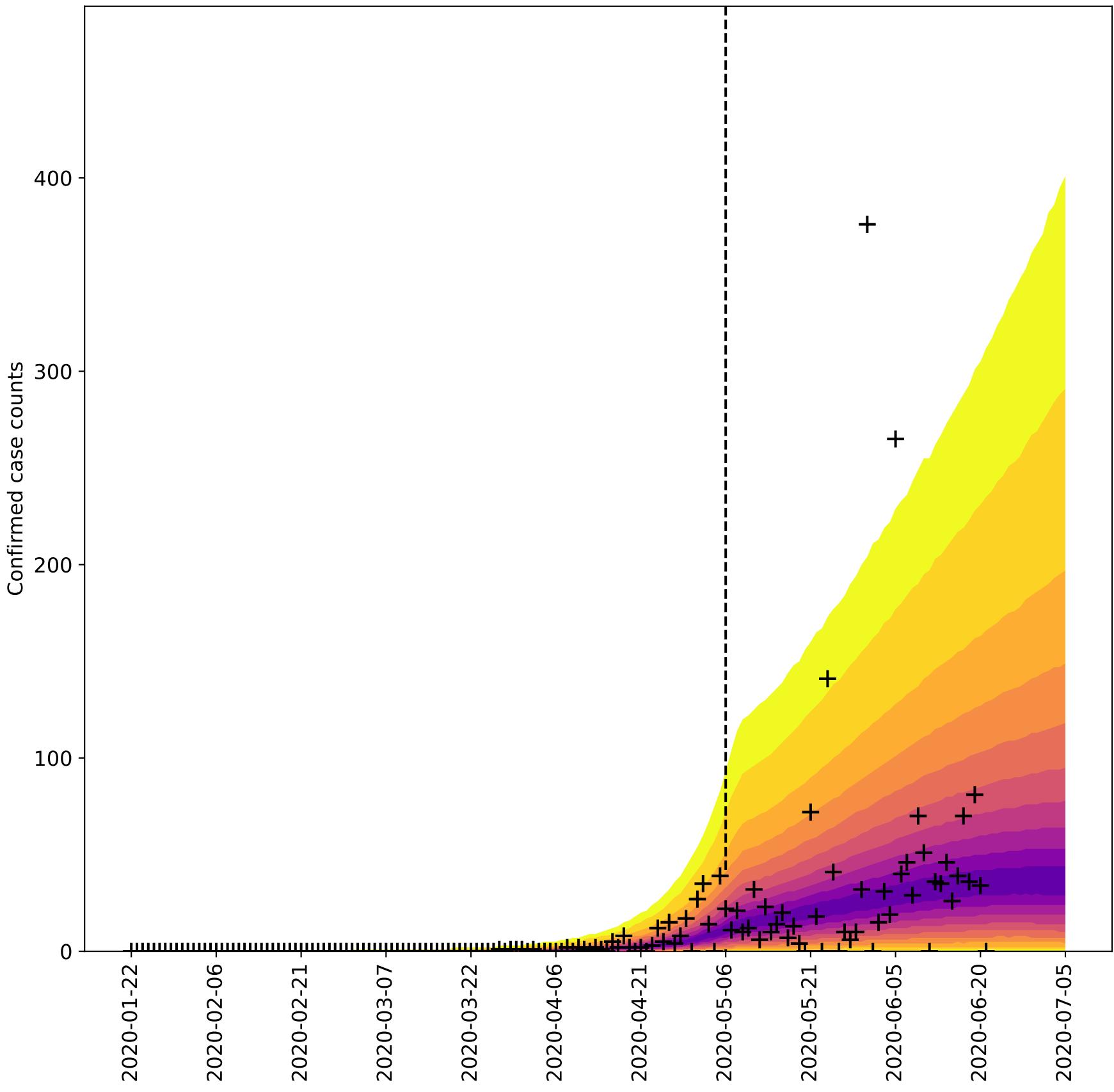
Niles, MI



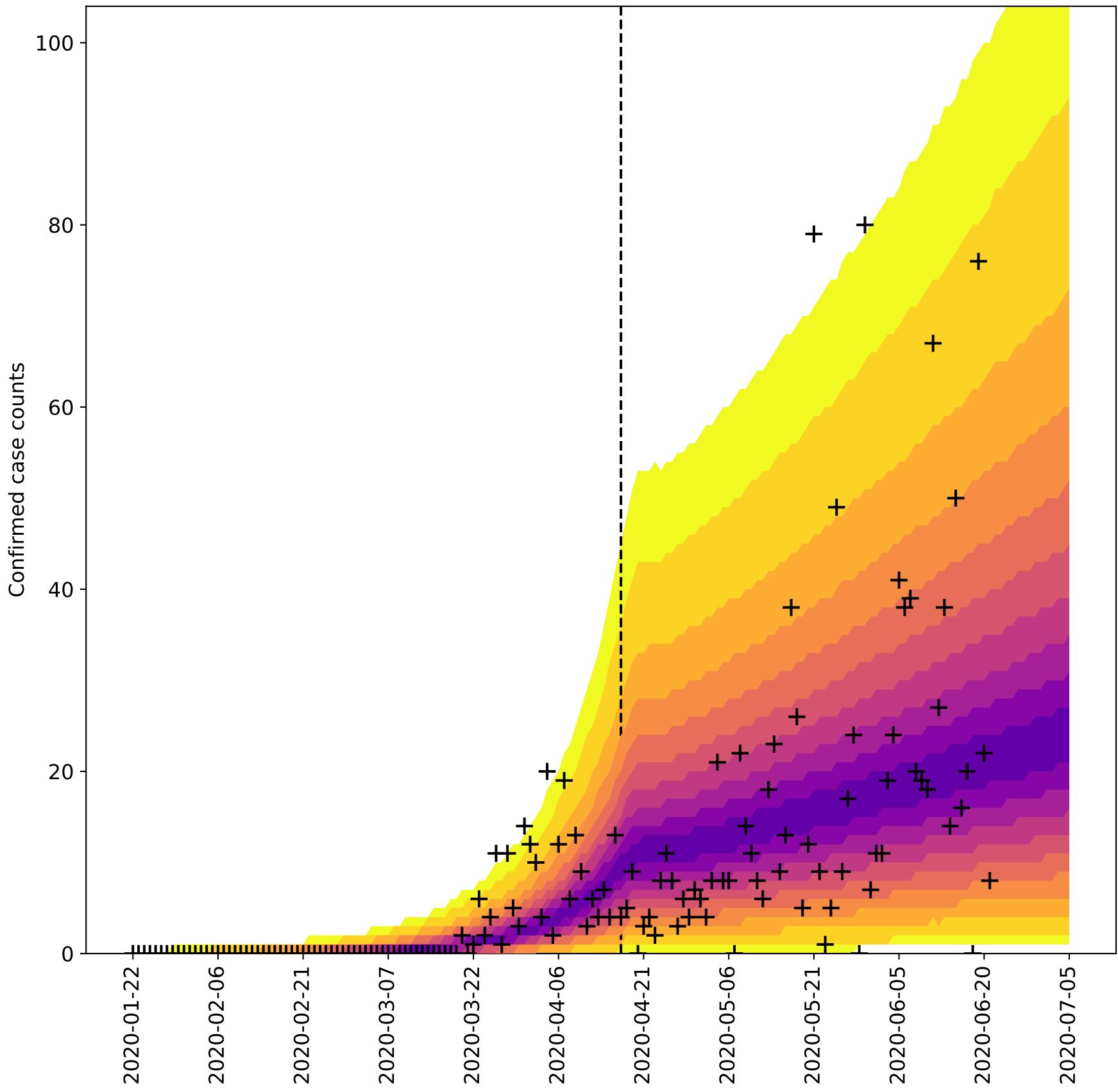
Vineland-Bridgeton, NJ



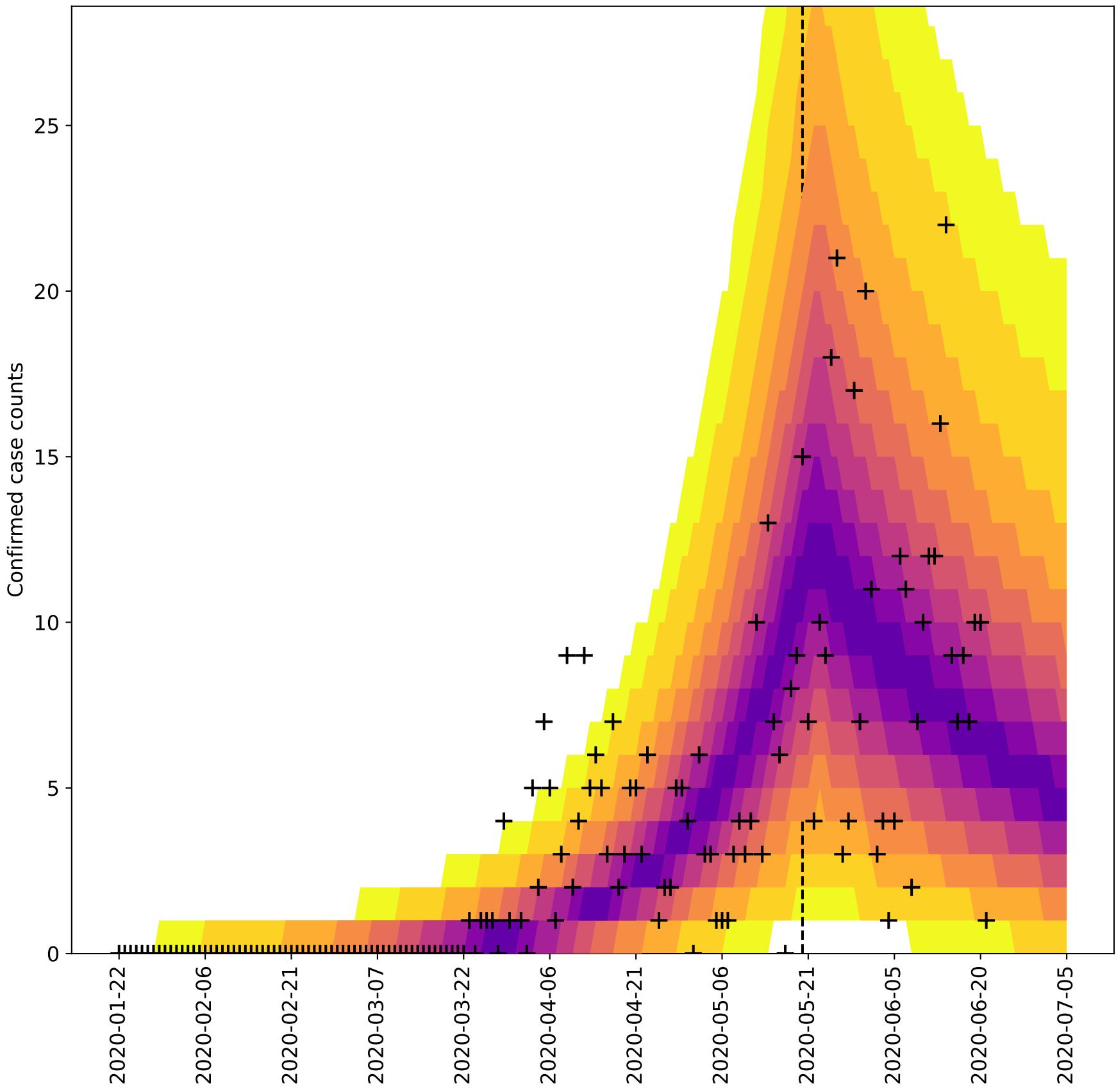
Hanford-Corcoran, CA



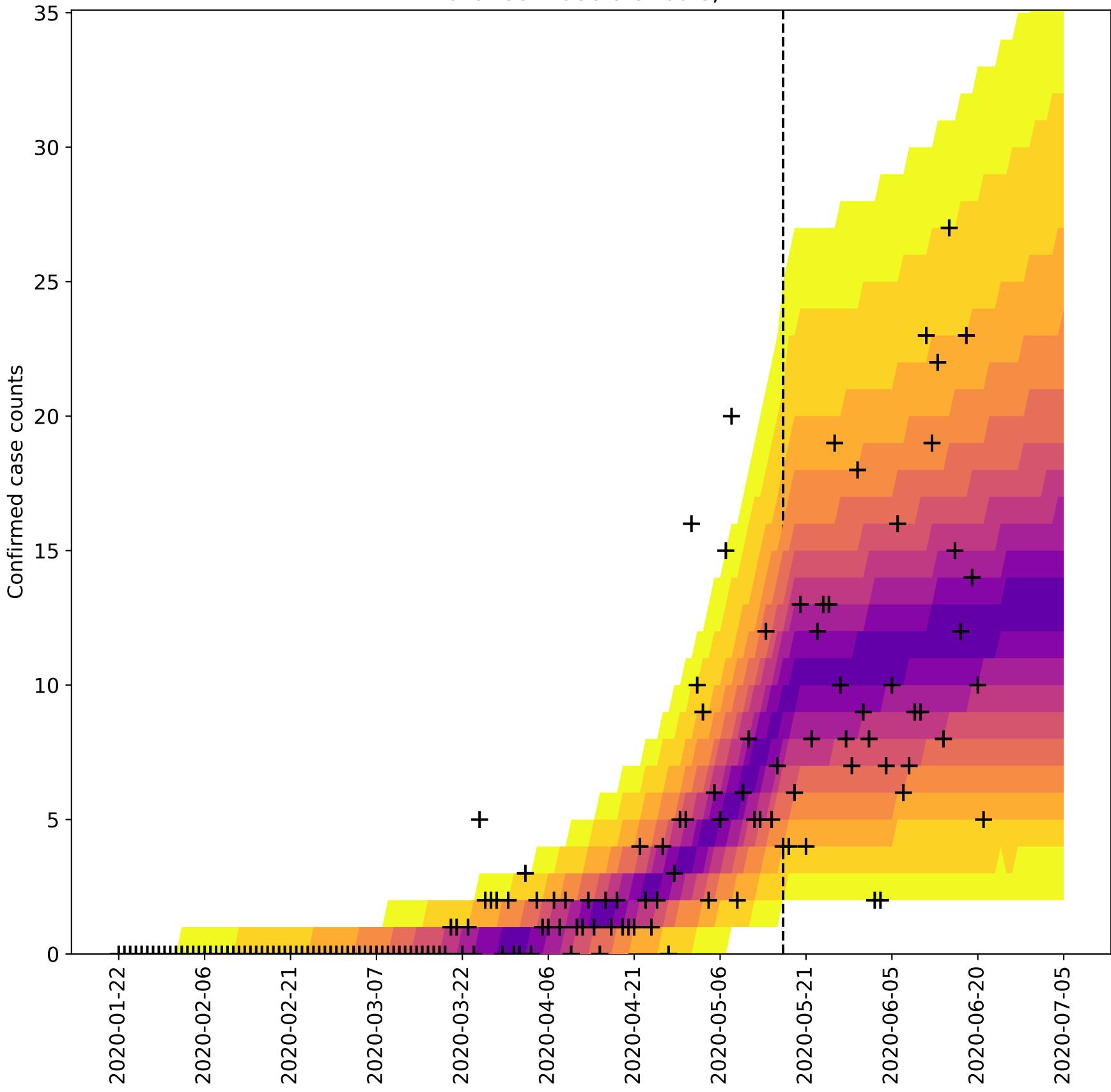
Alexandria, LA



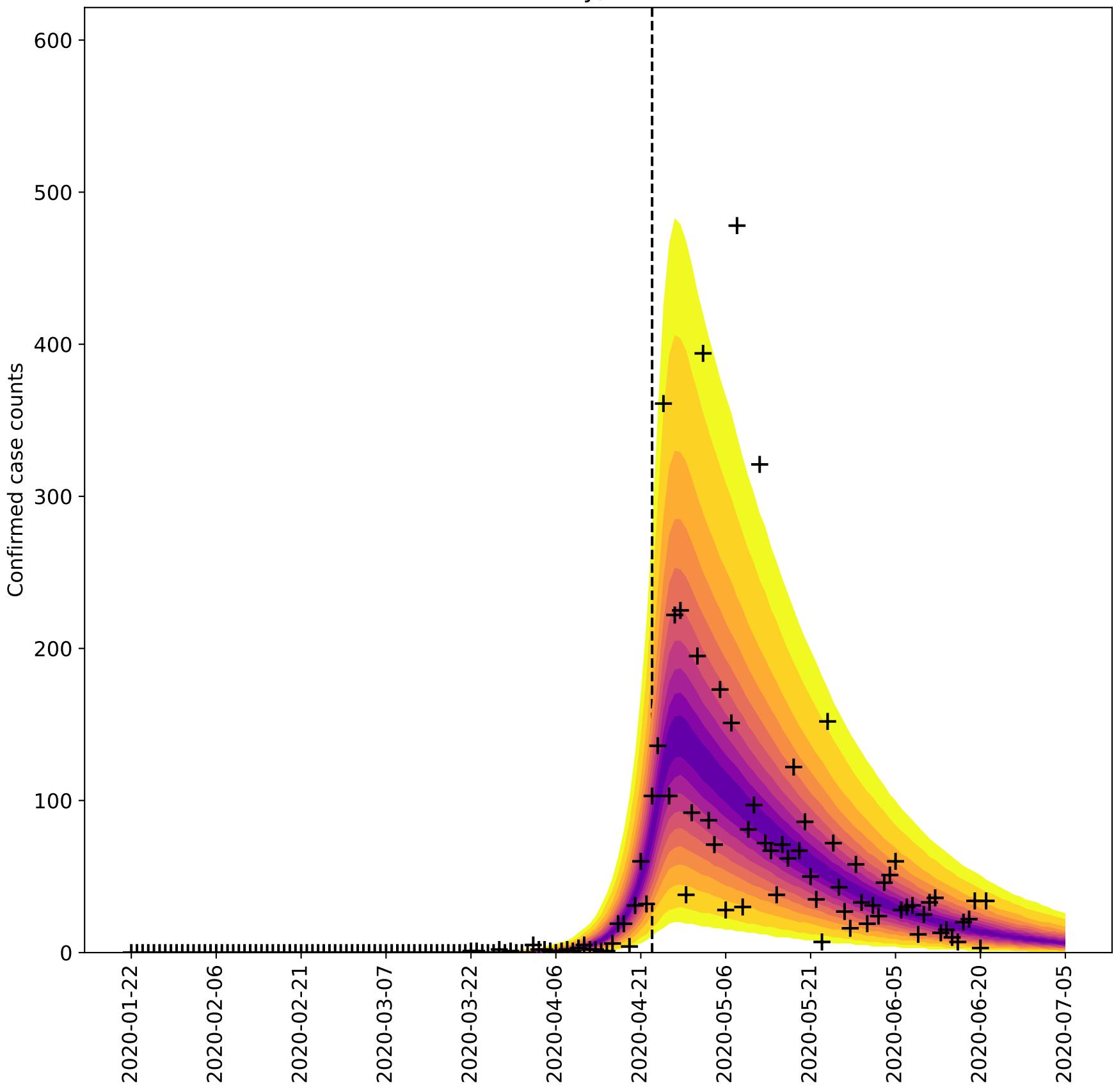
Dothan, AL



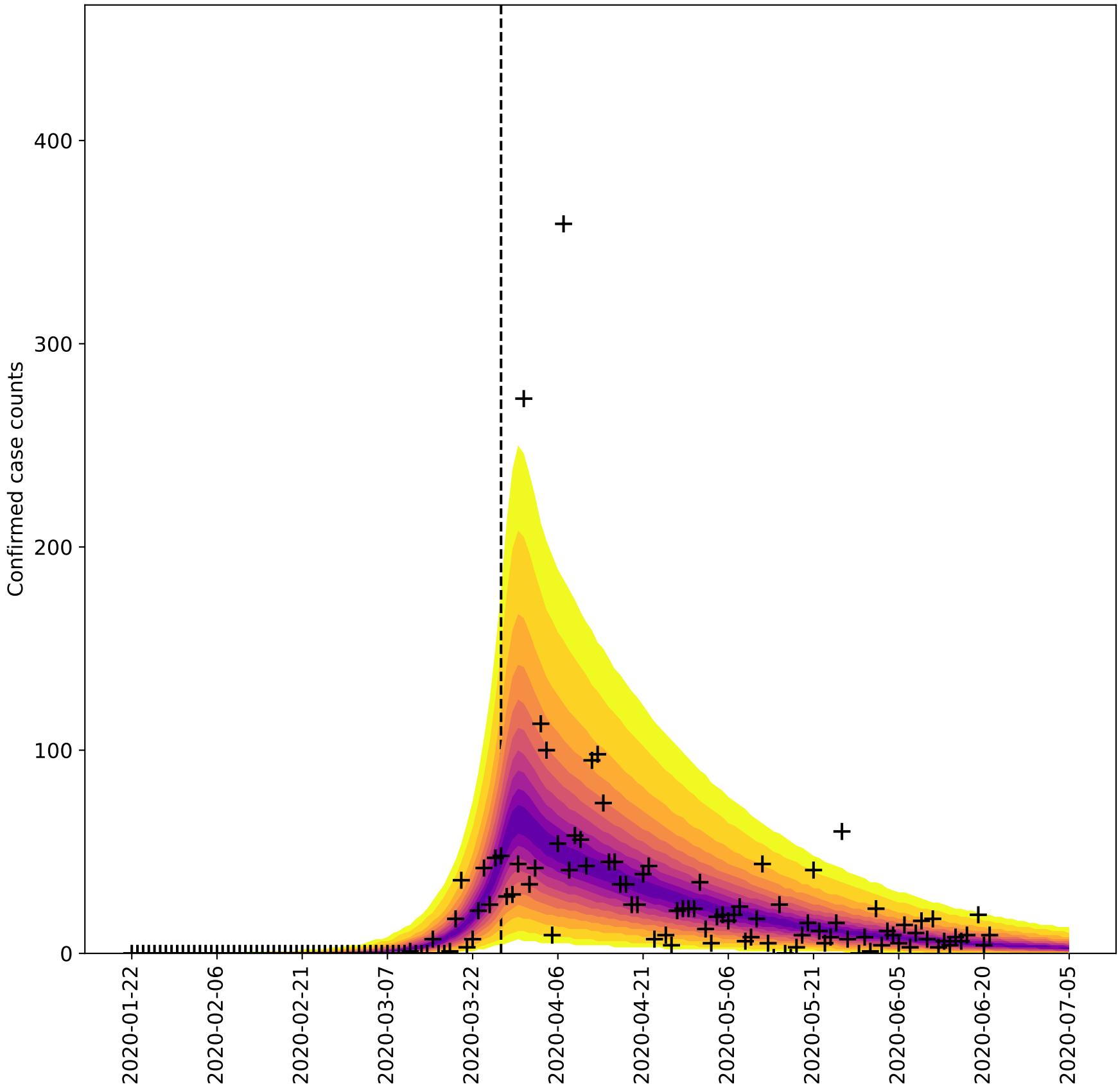
Florence-Muscle Shoals, AL



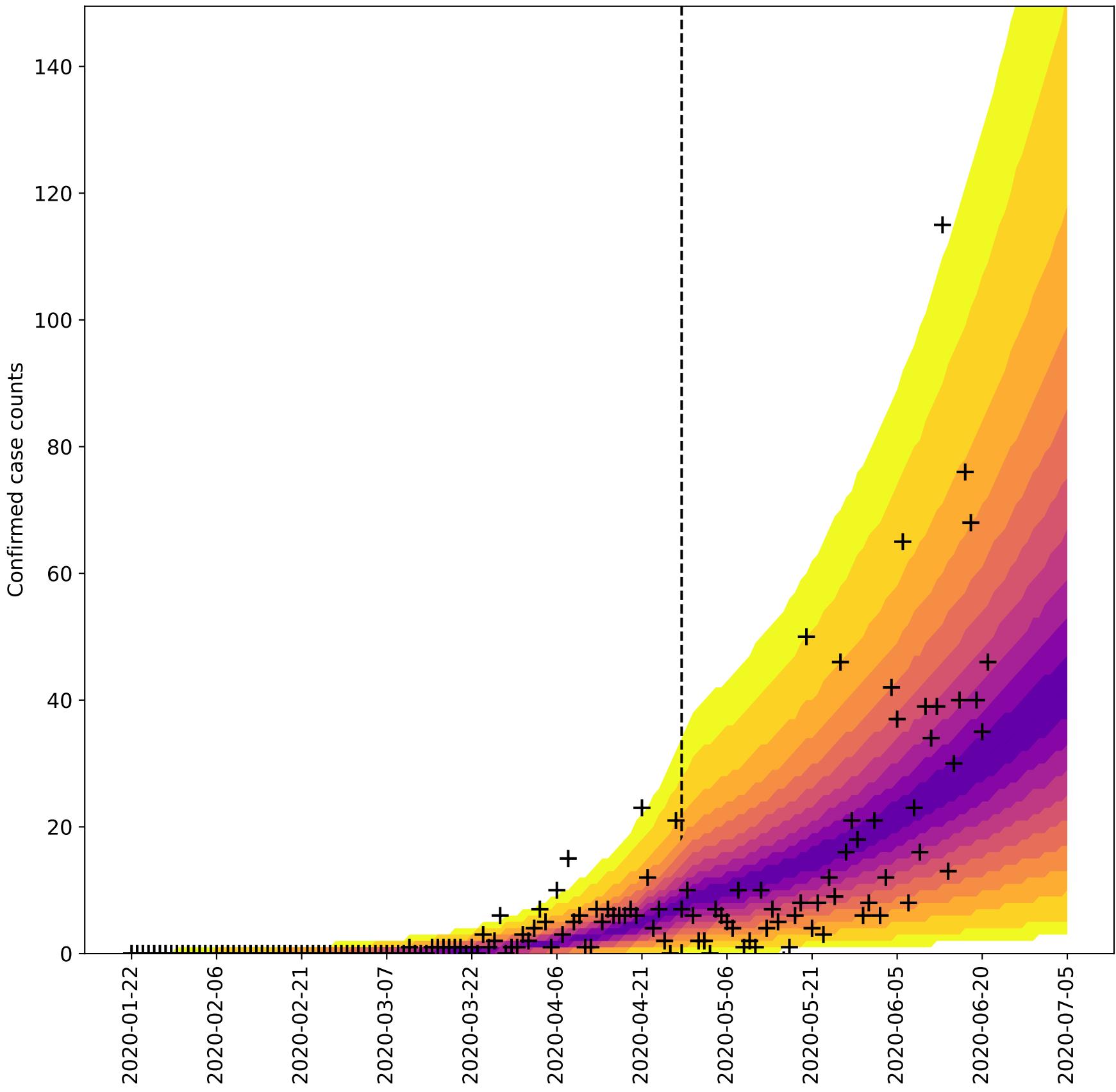
Sioux City, IA-NE-SD



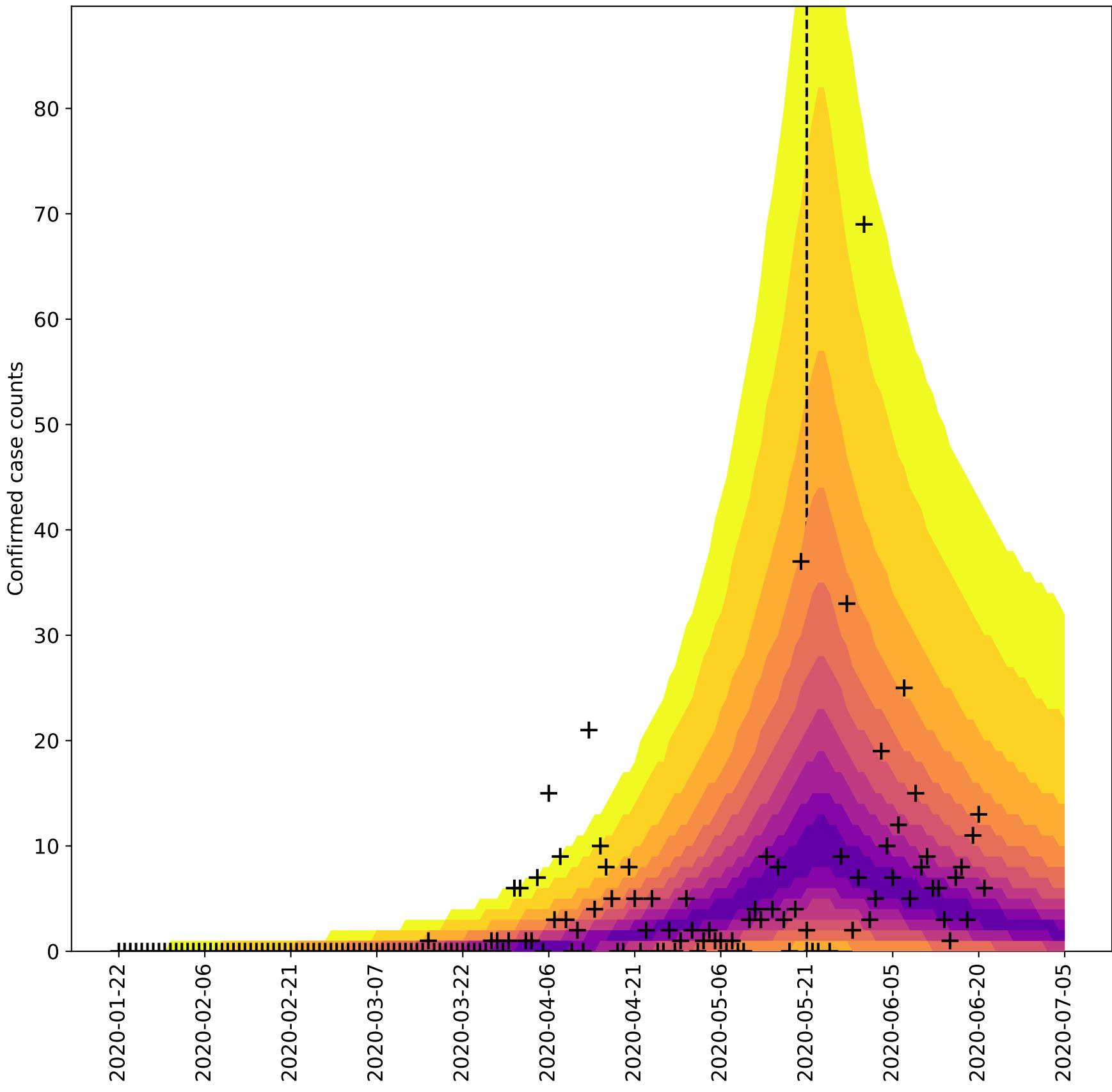
Albany, GA



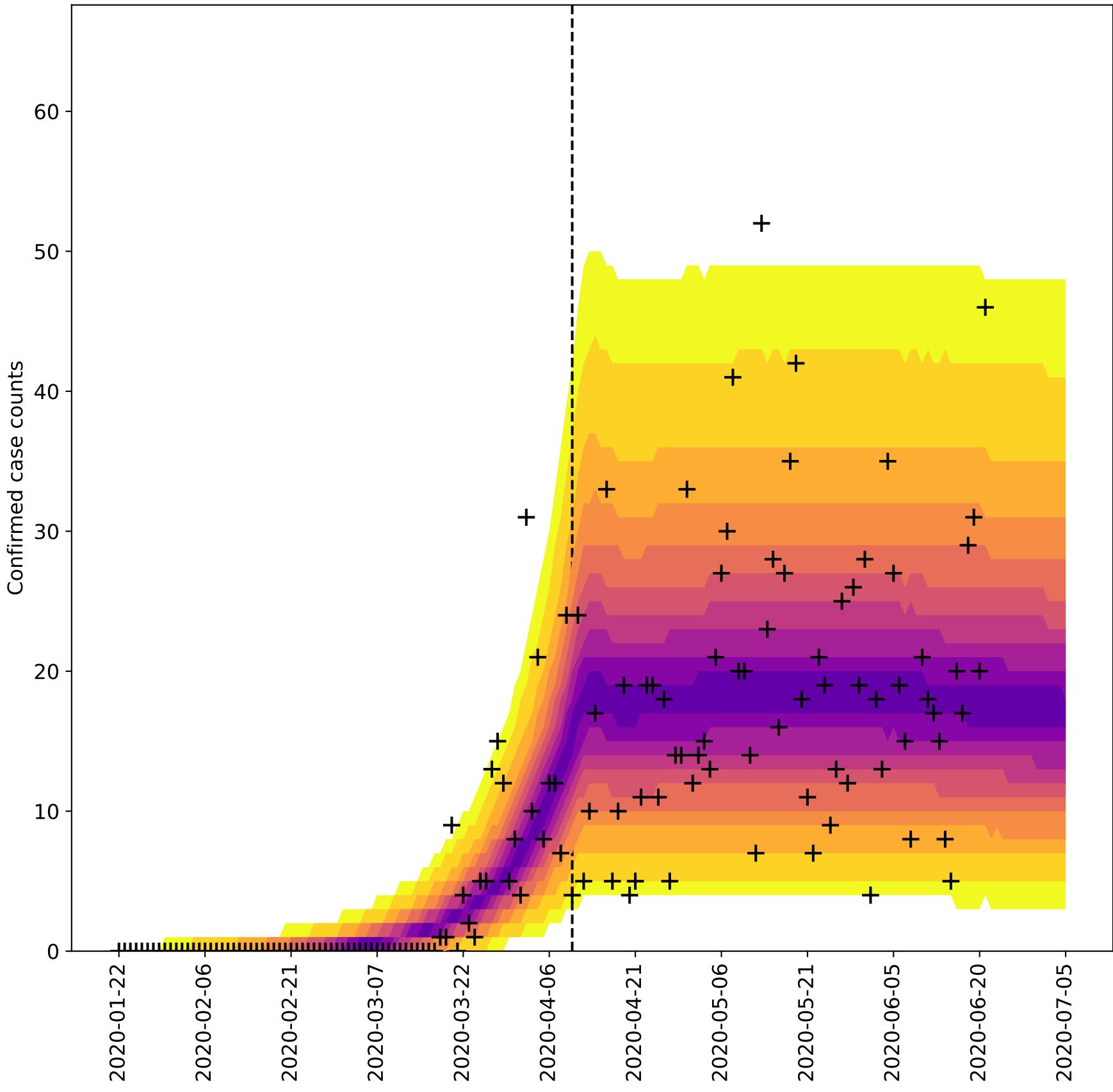
Valdosta, GA



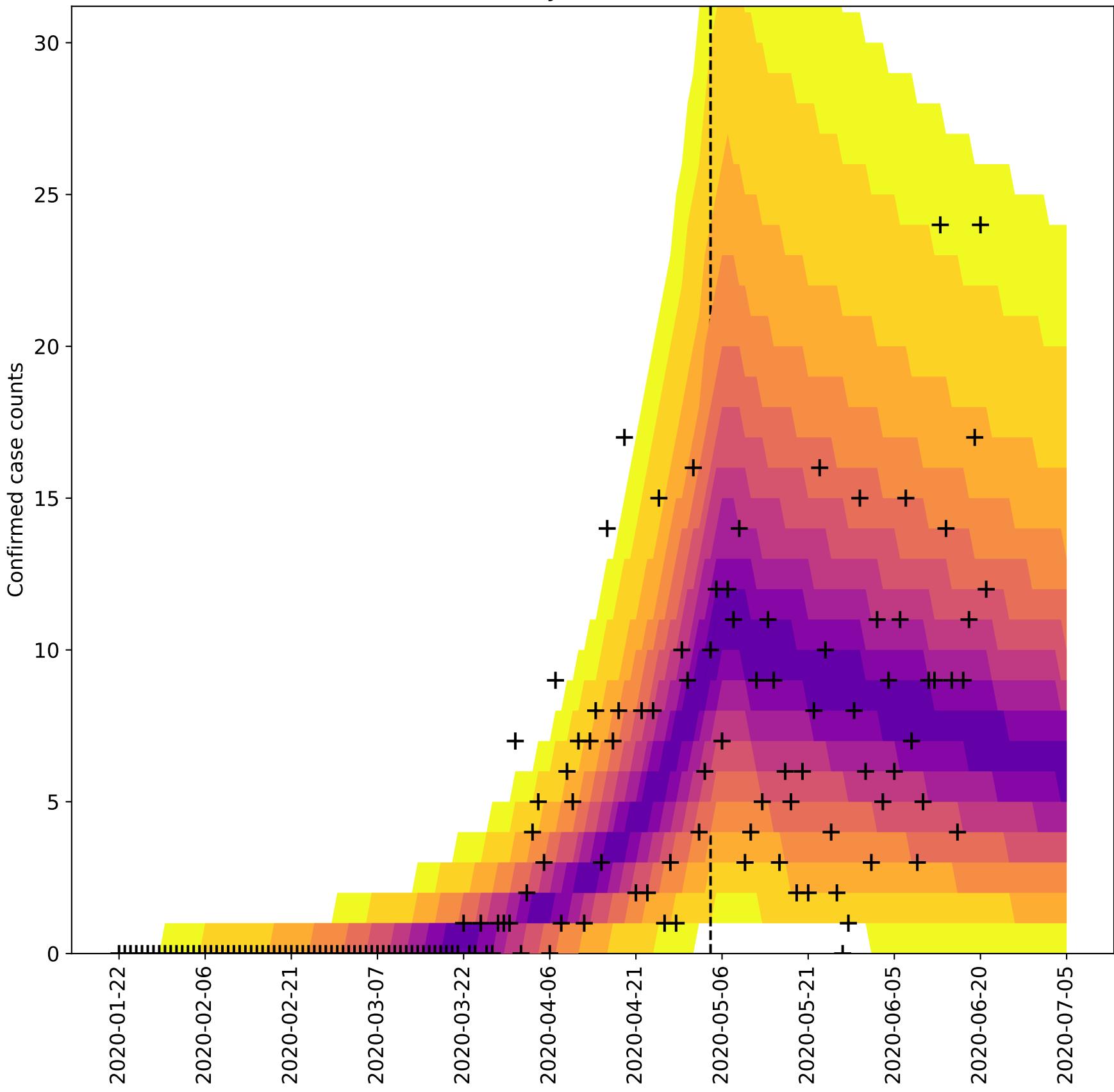
Texarkana, TX-AR



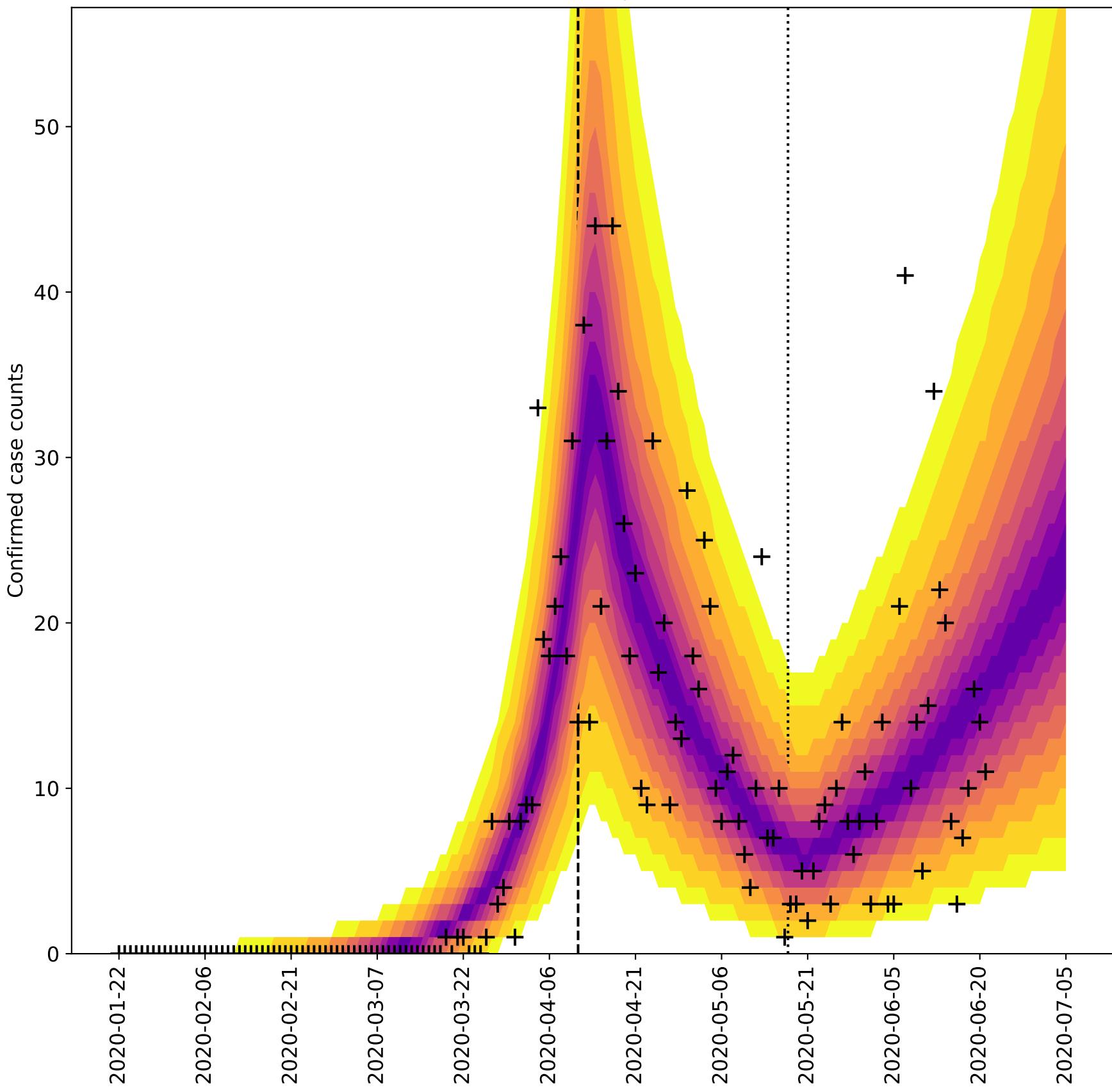
Flagstaff, AZ



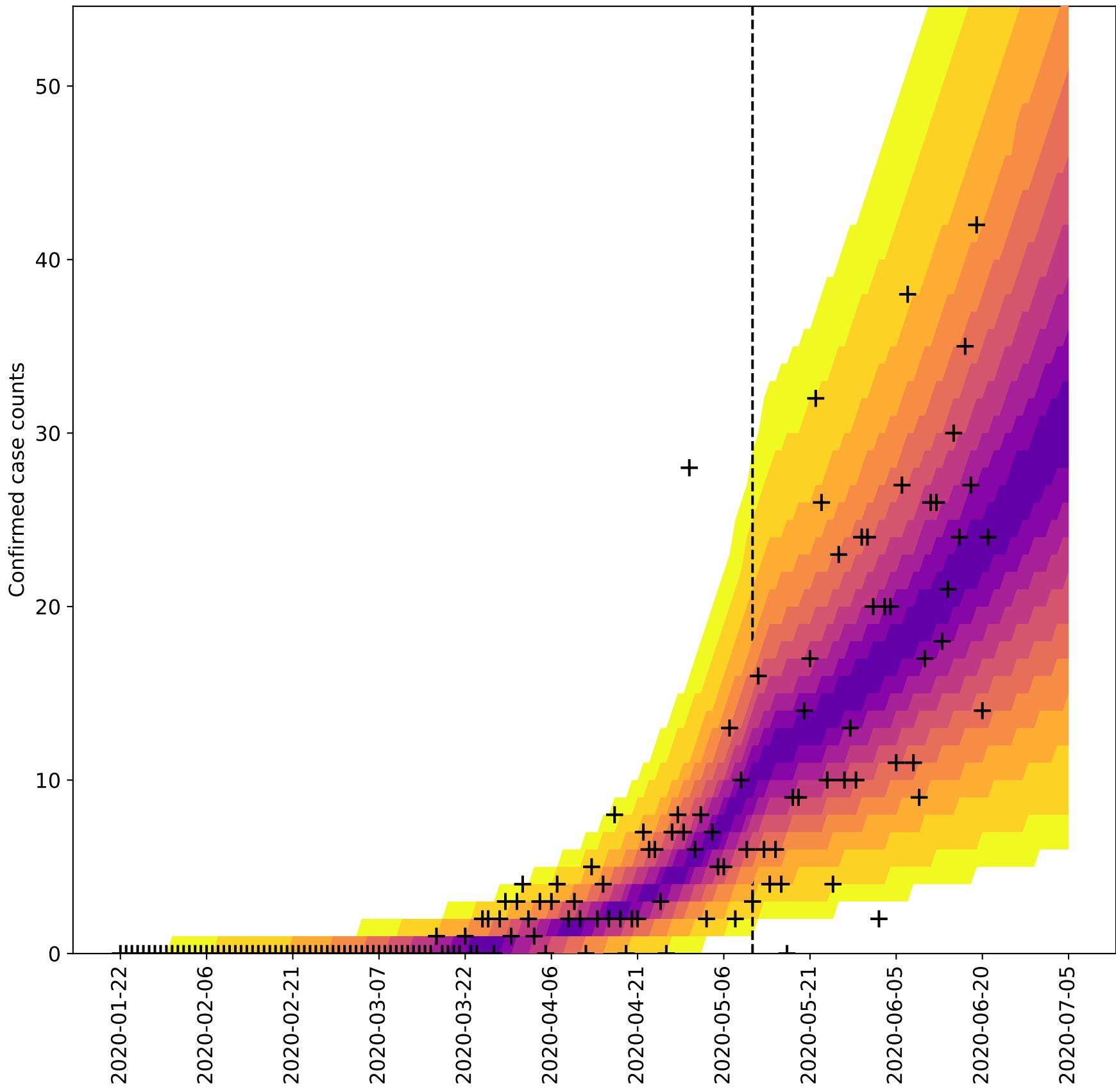
Rocky Mount, NC



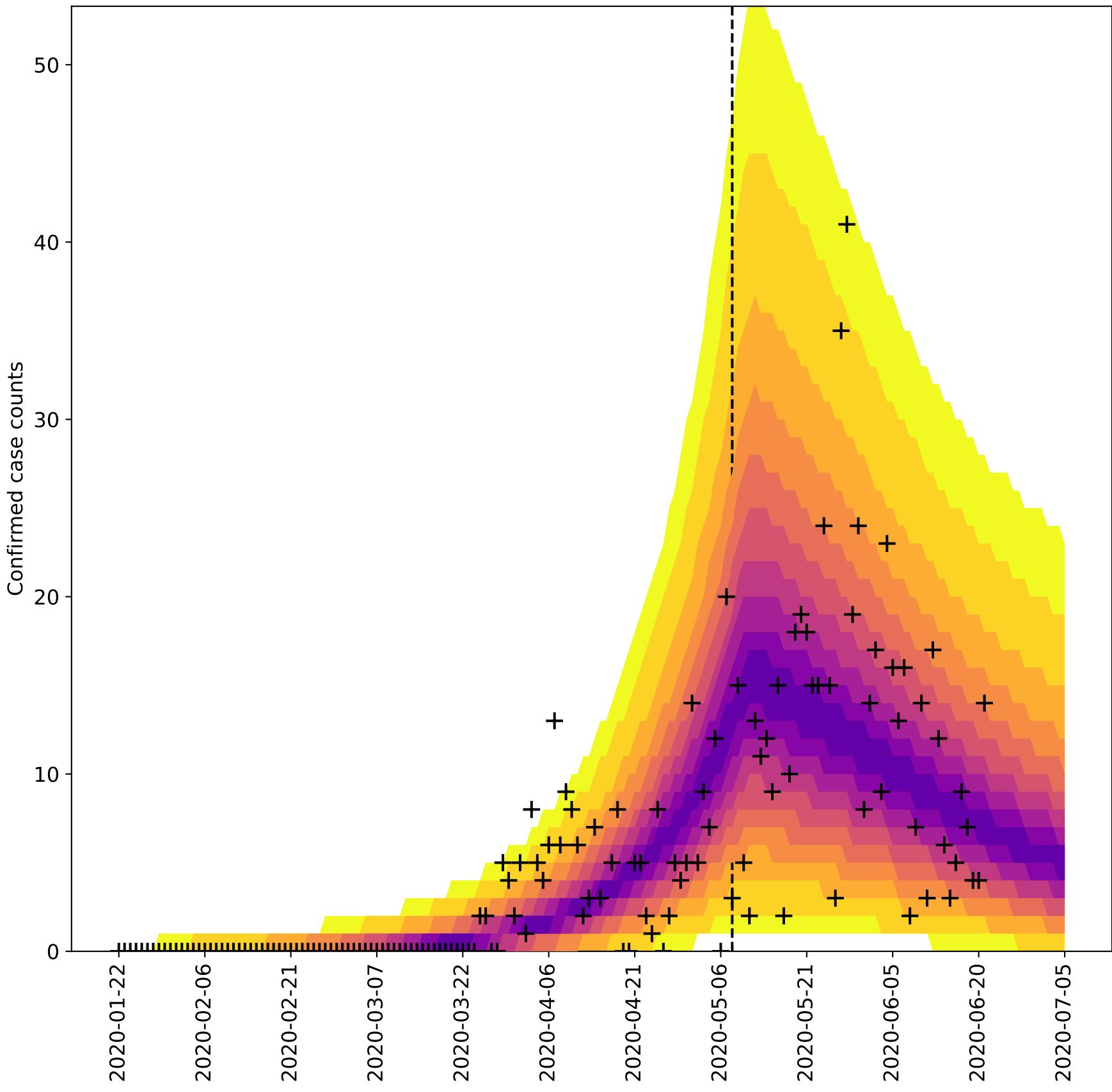
Lebanon, PA



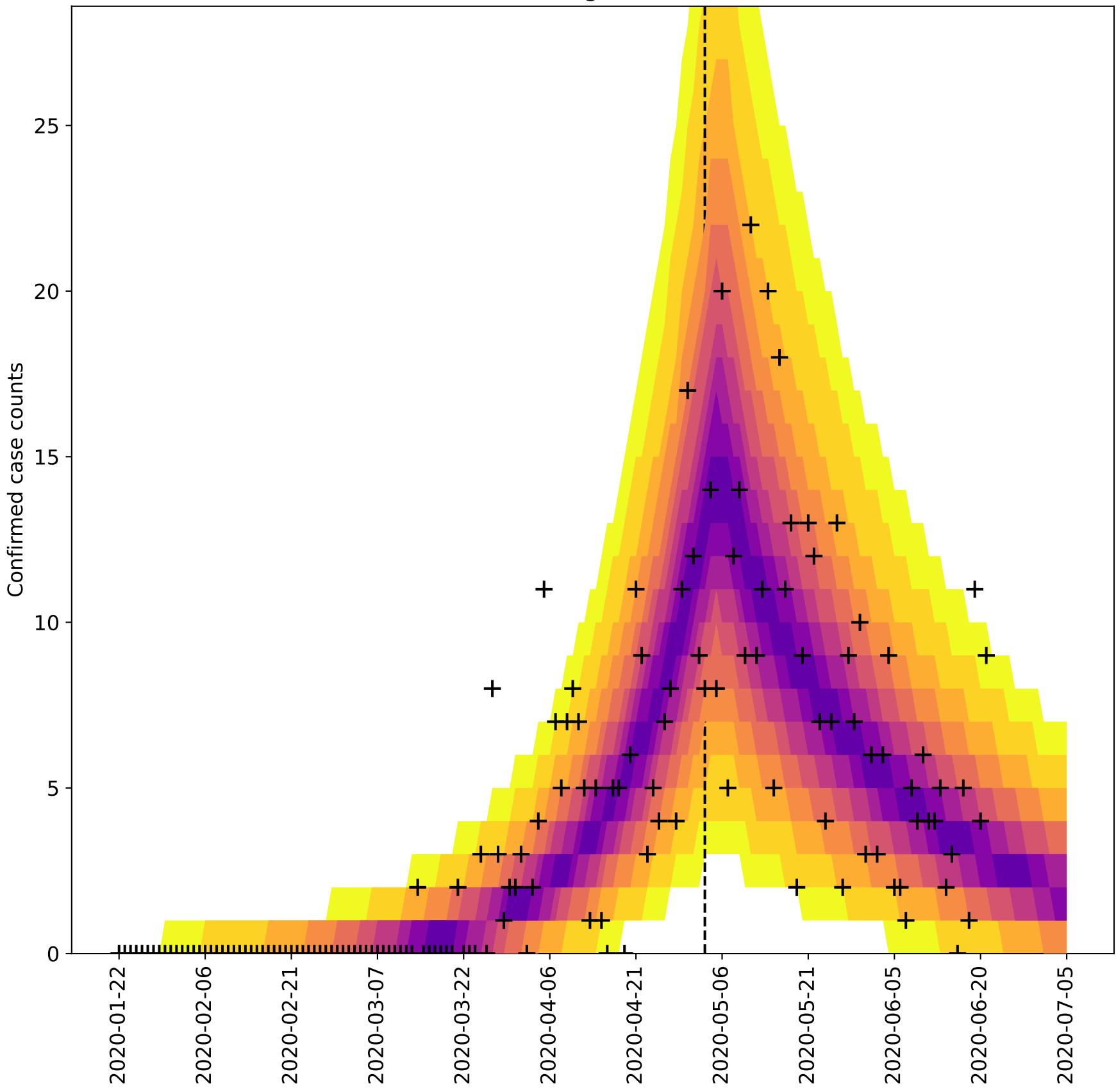
Dalton, GA



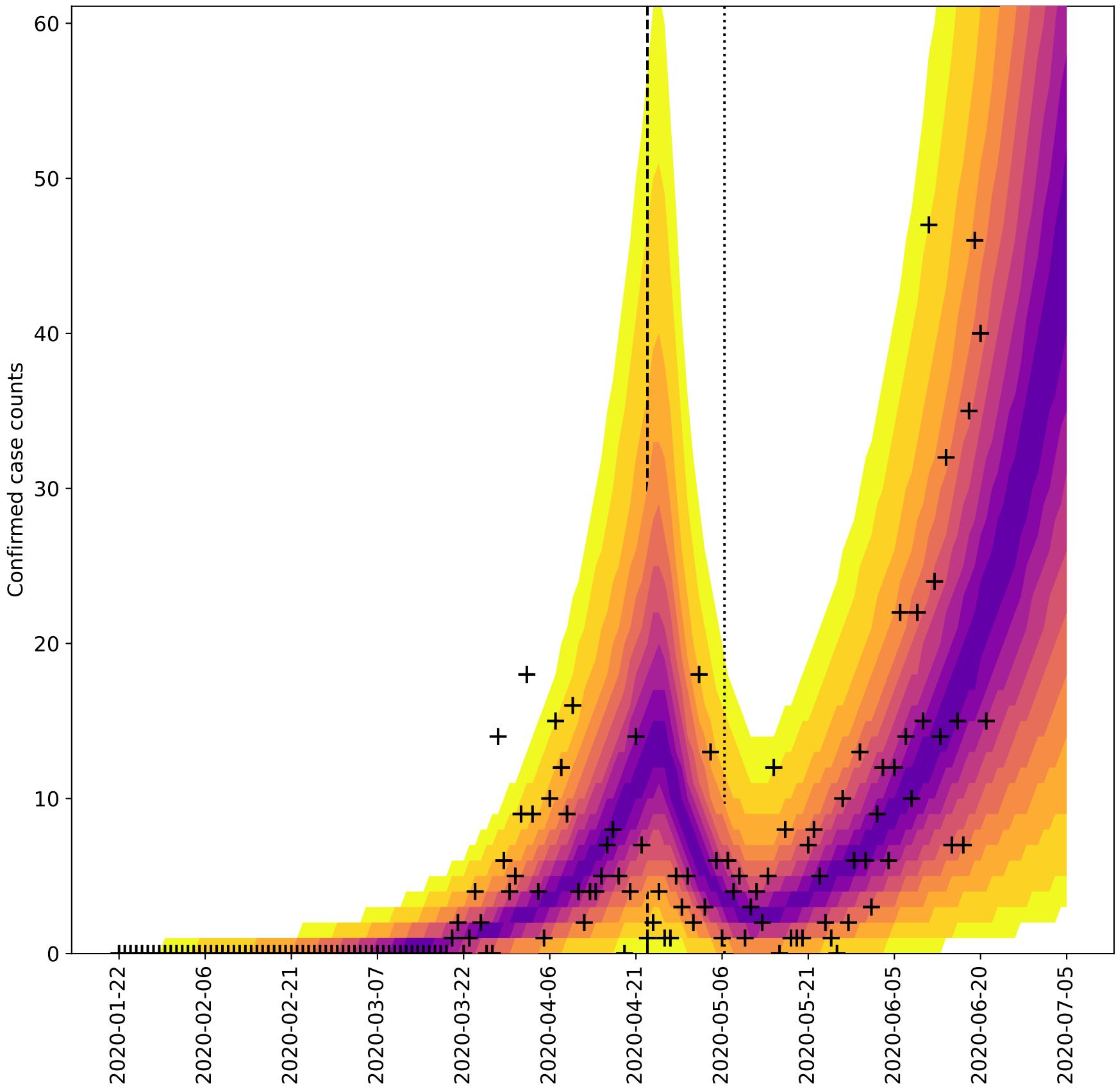
Winchester, VA-WV



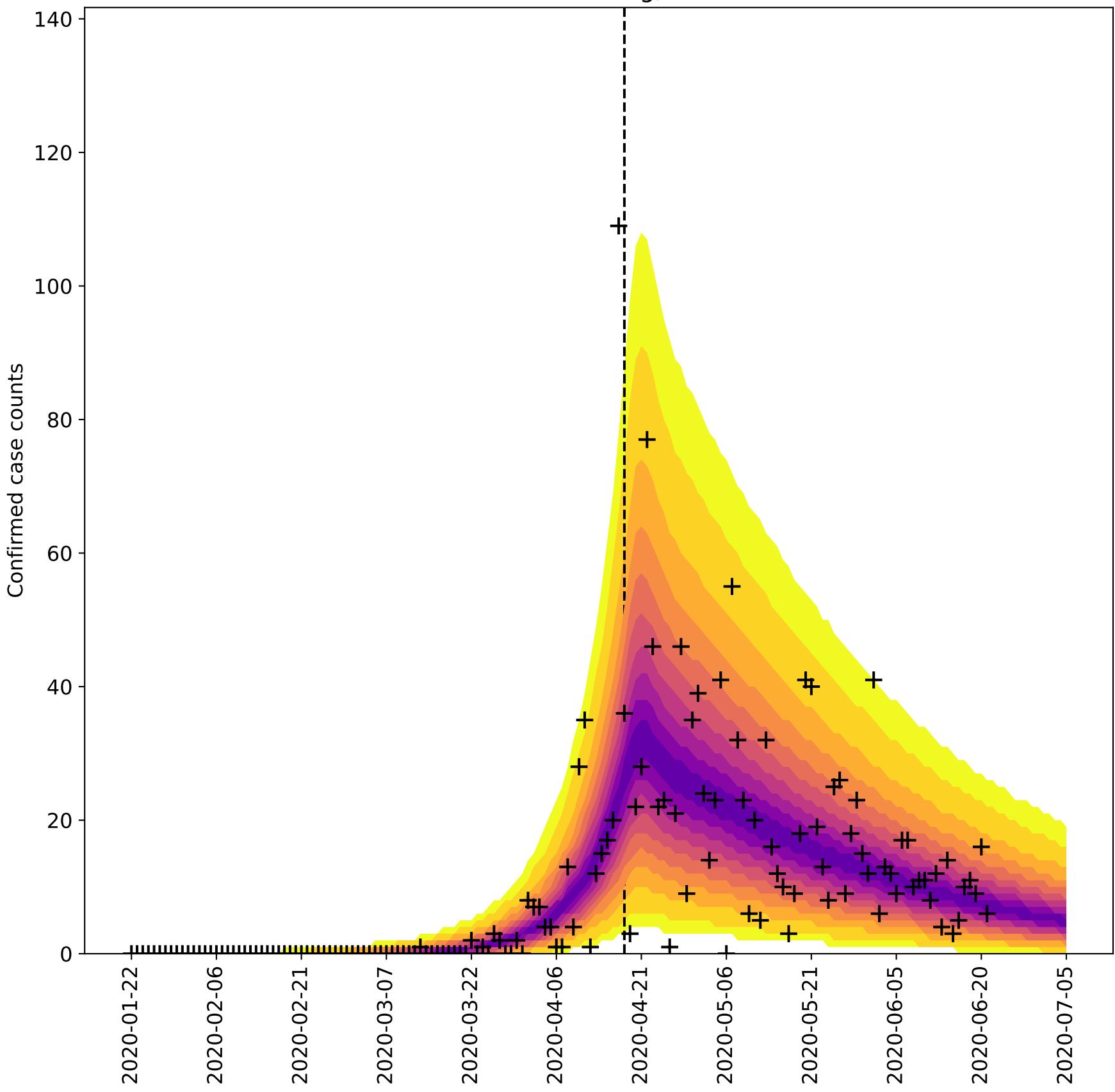
Wheeling, WV-OH



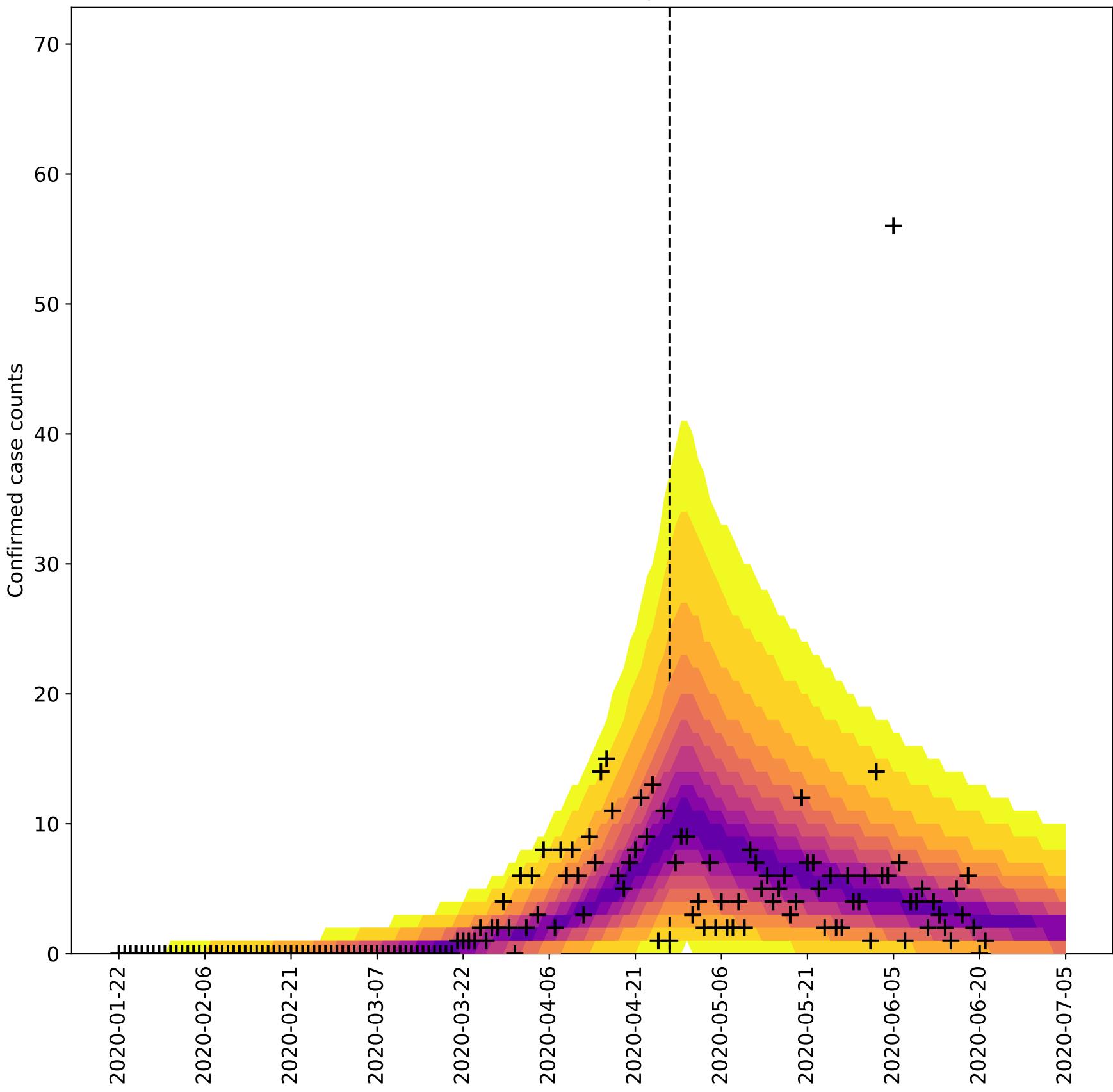
Sumter, SC



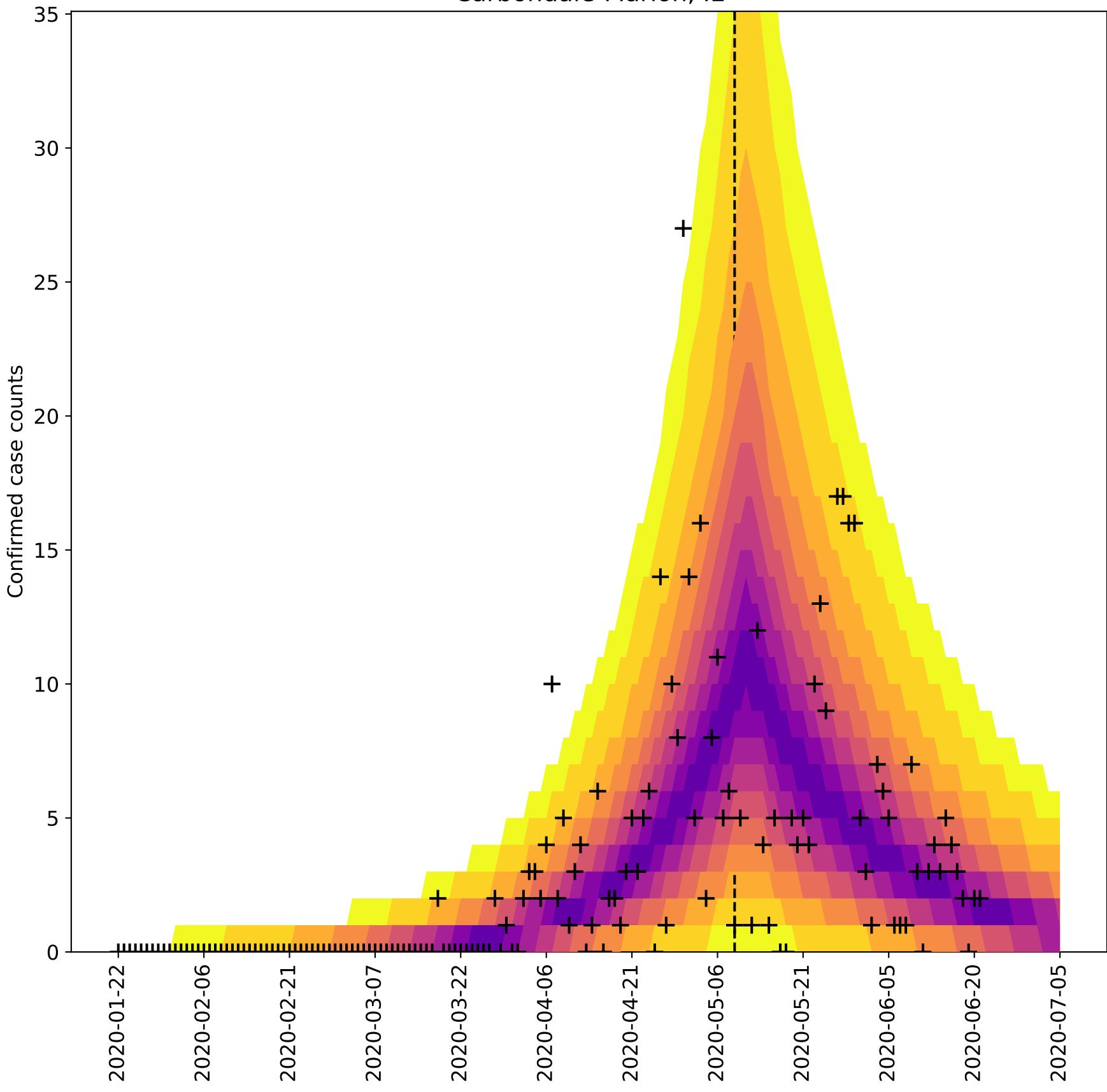
Harrisonburg, VA



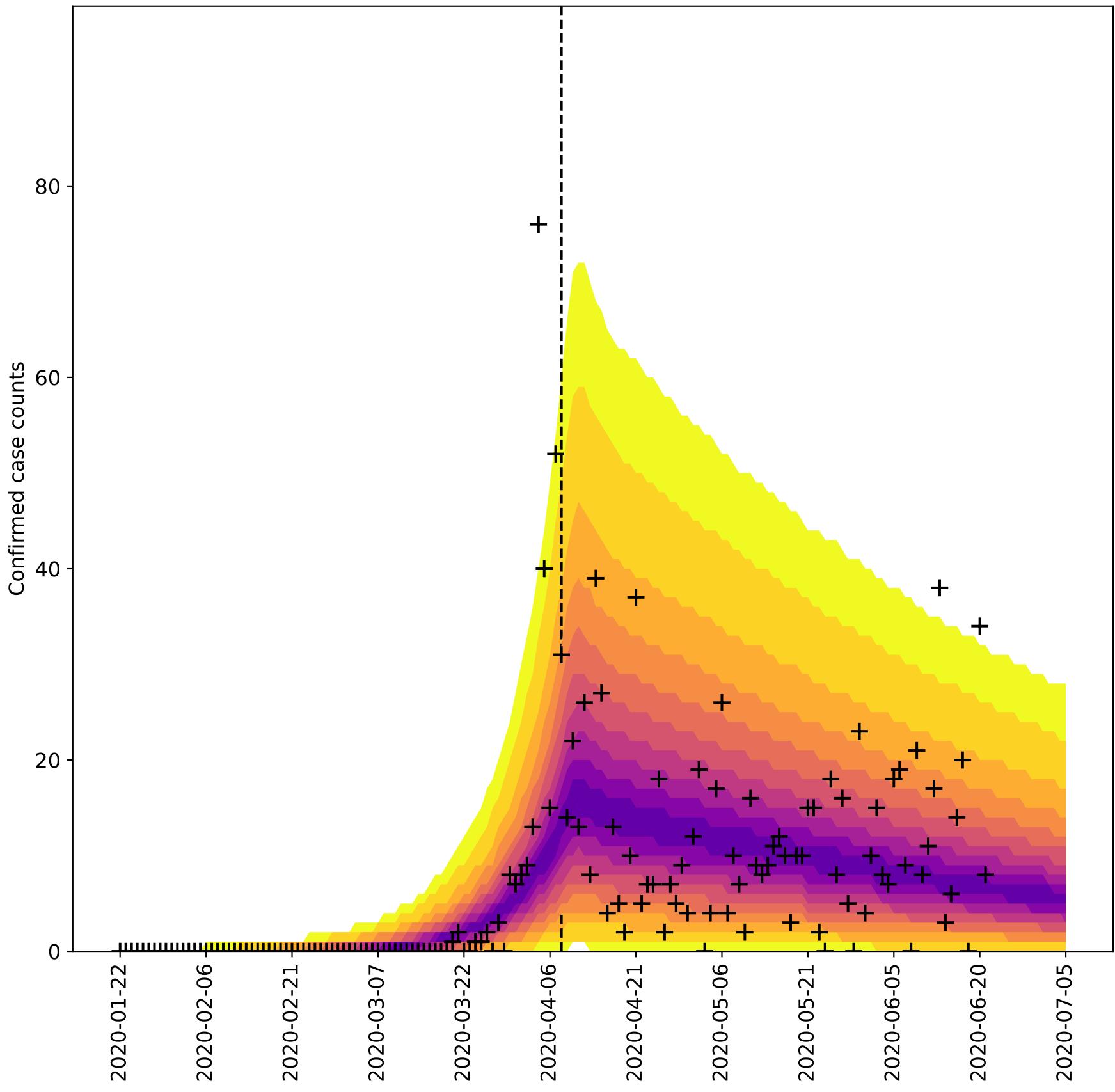
Battle Creek, MI



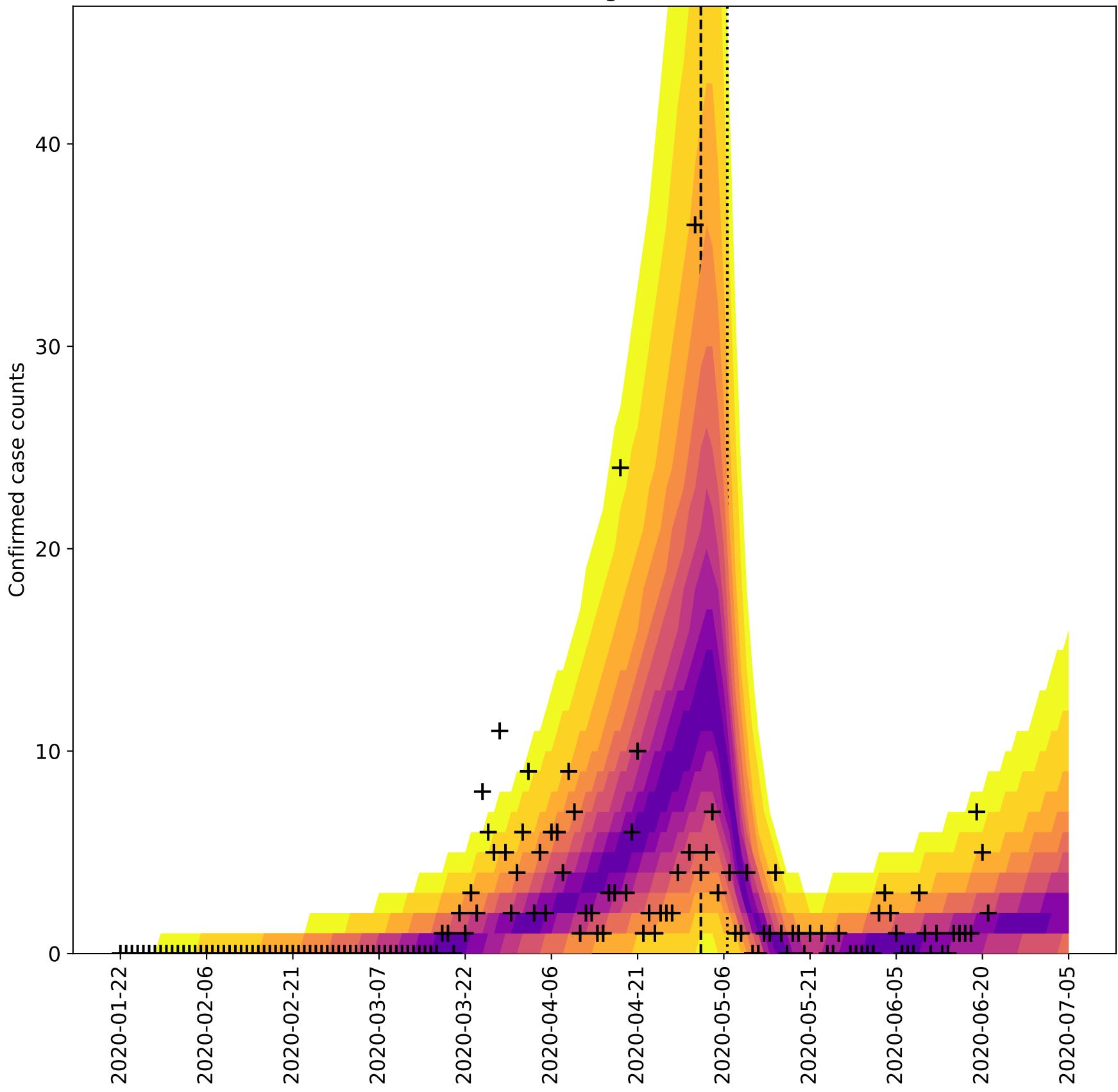
Carbondale-Marion, IL



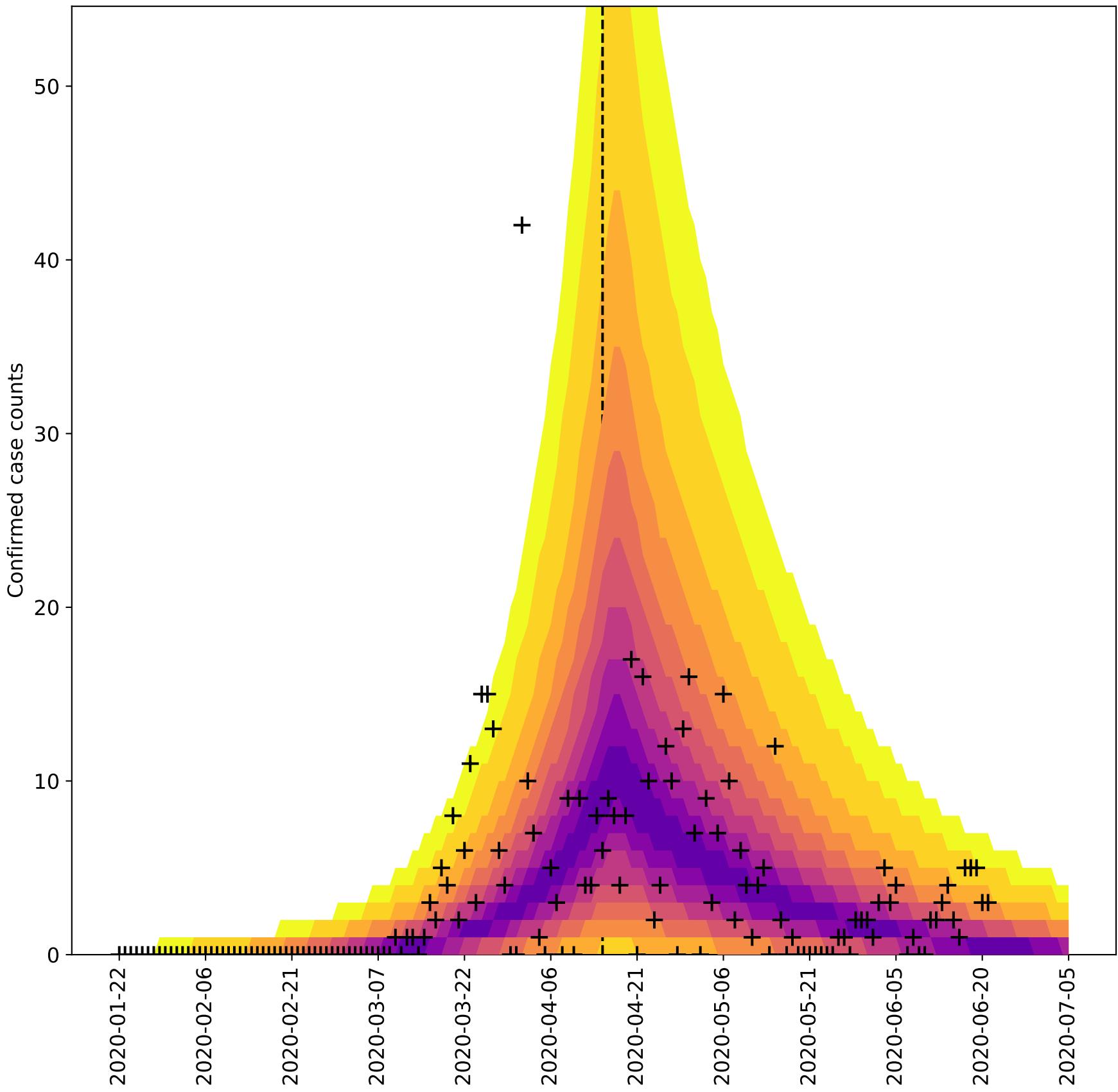
Hammond, LA



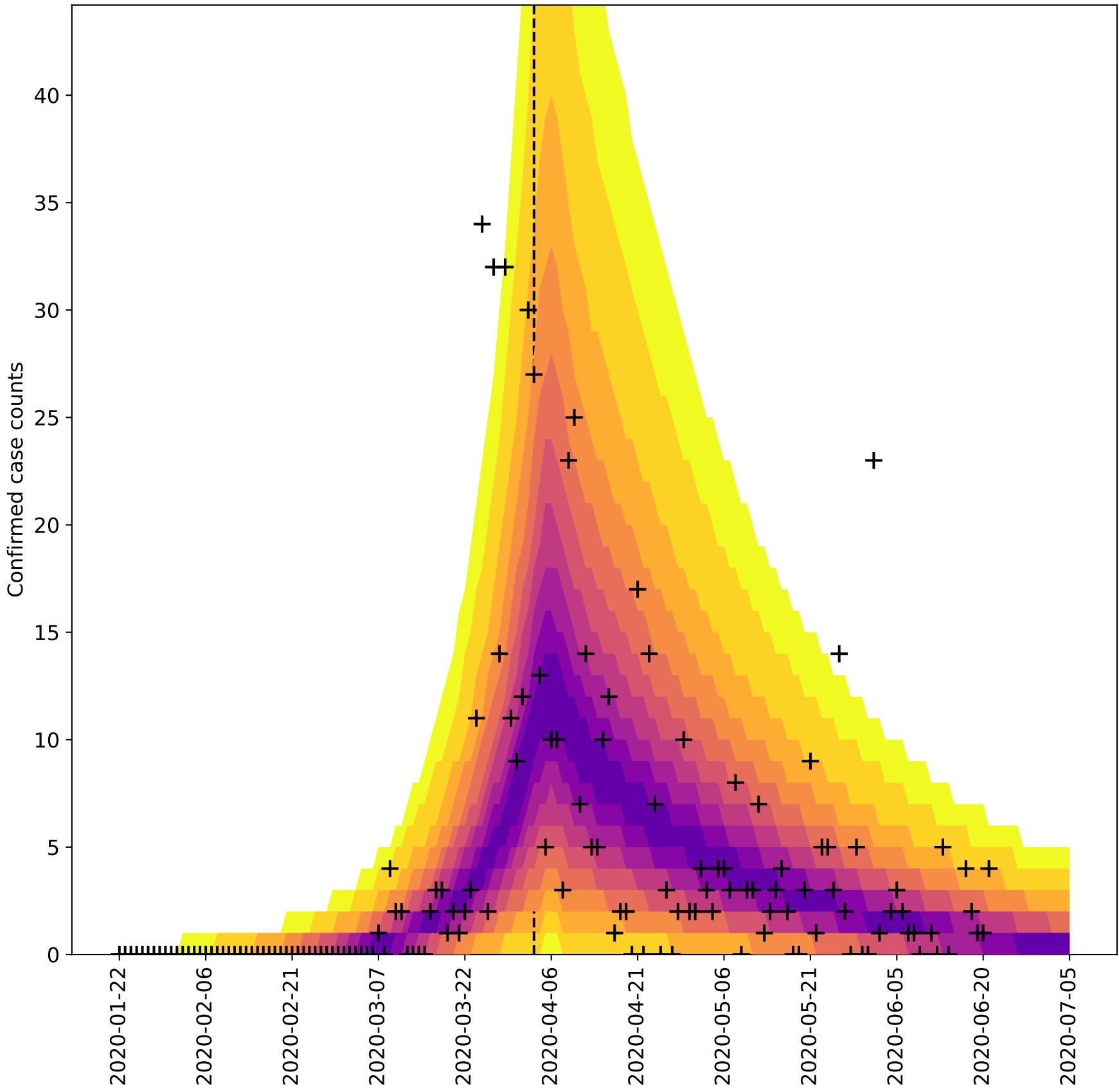
The Villages, FL



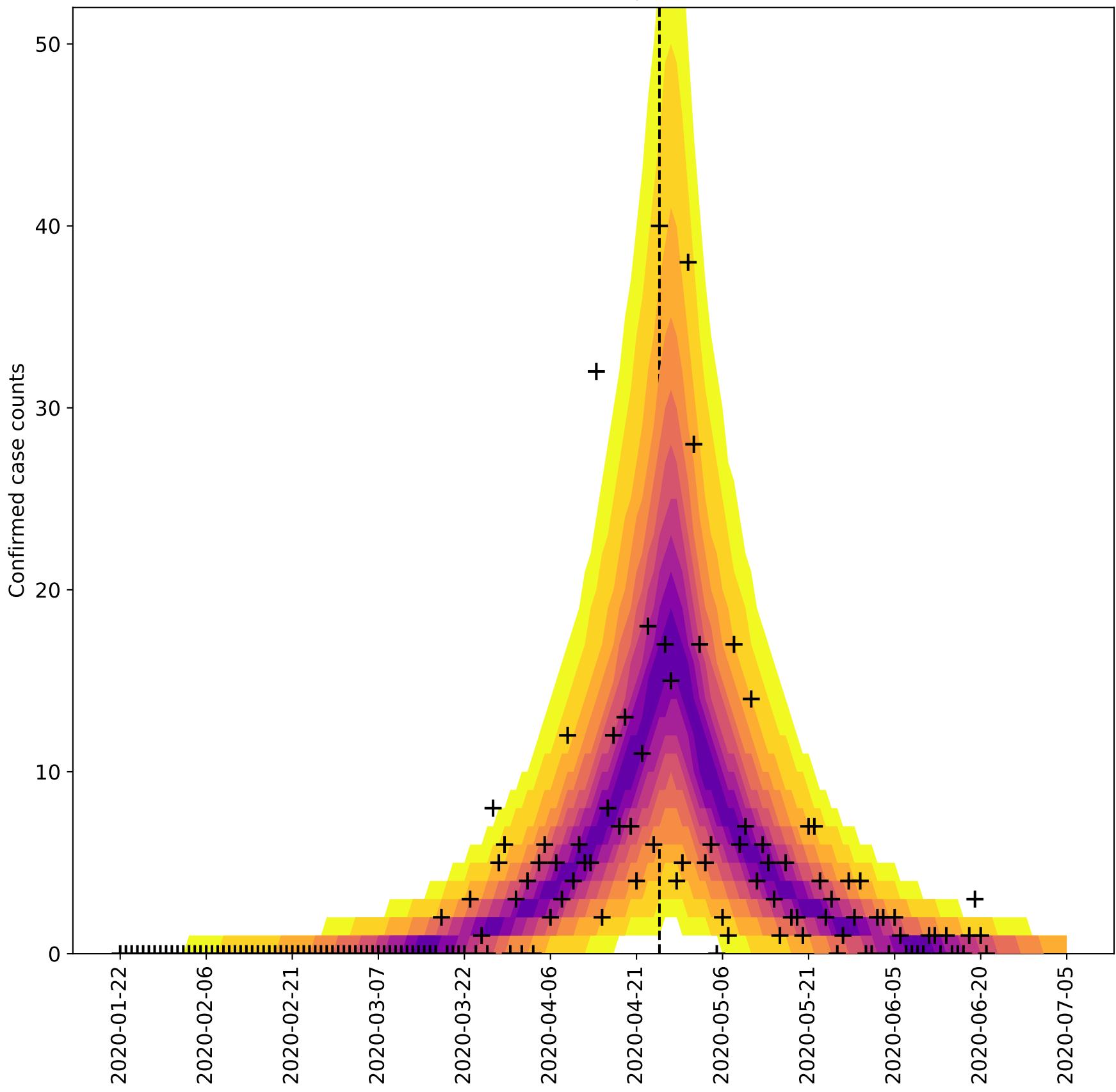
Mount Vernon-Anacortes, WA



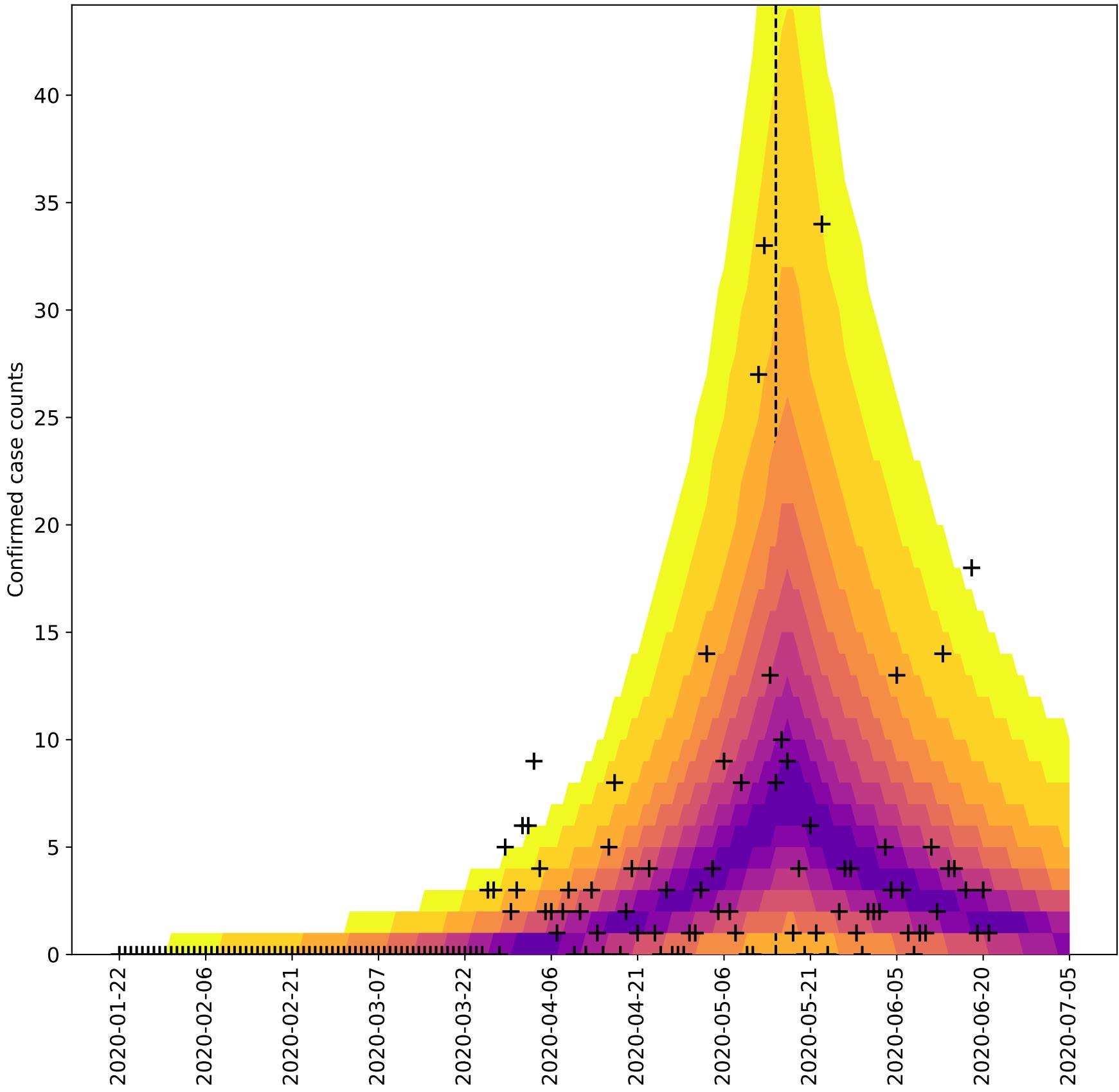
Pittsfield, MA



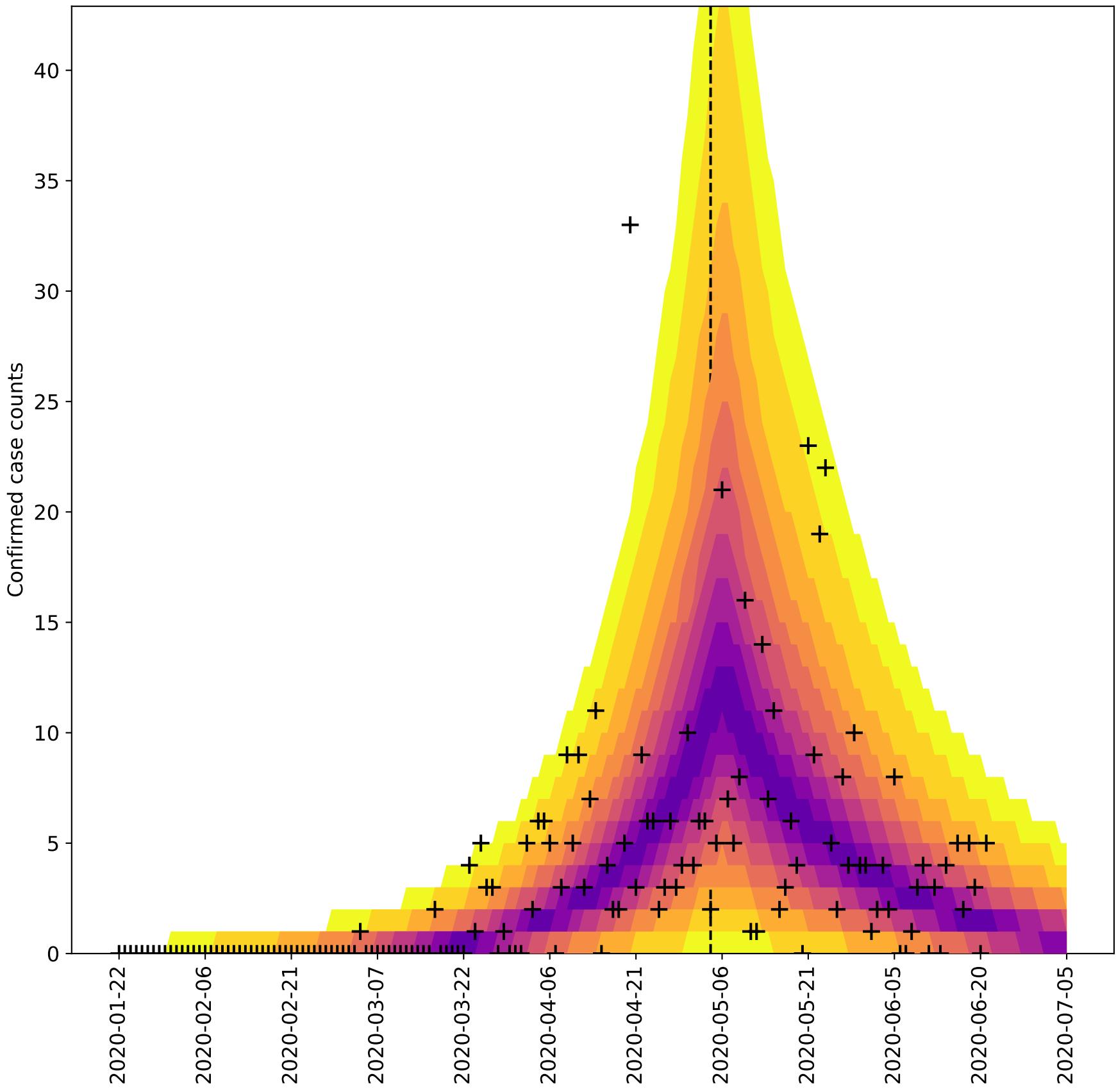
Glens Falls, NY



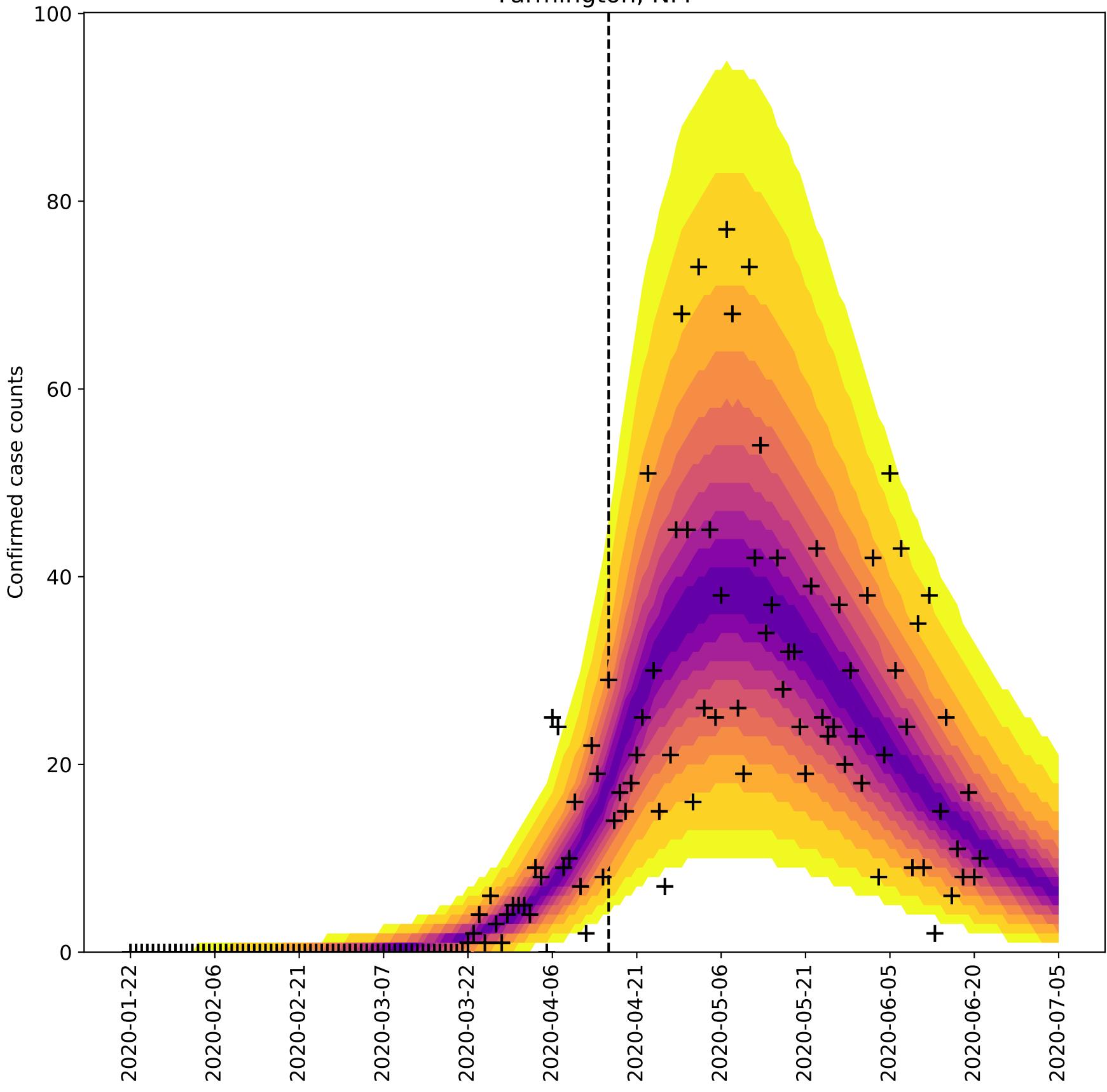
Lawton, OK



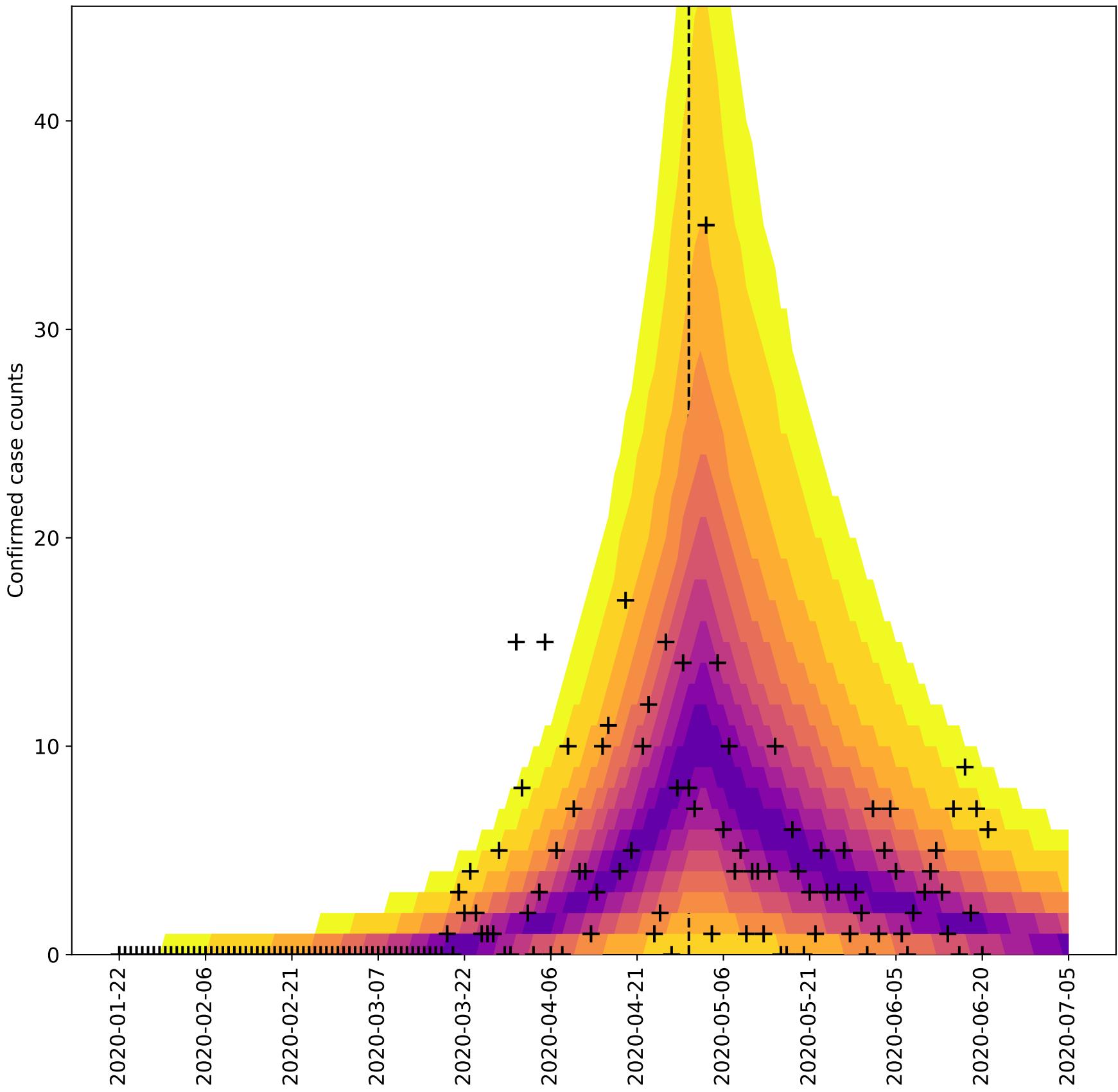
Wenatchee, WA



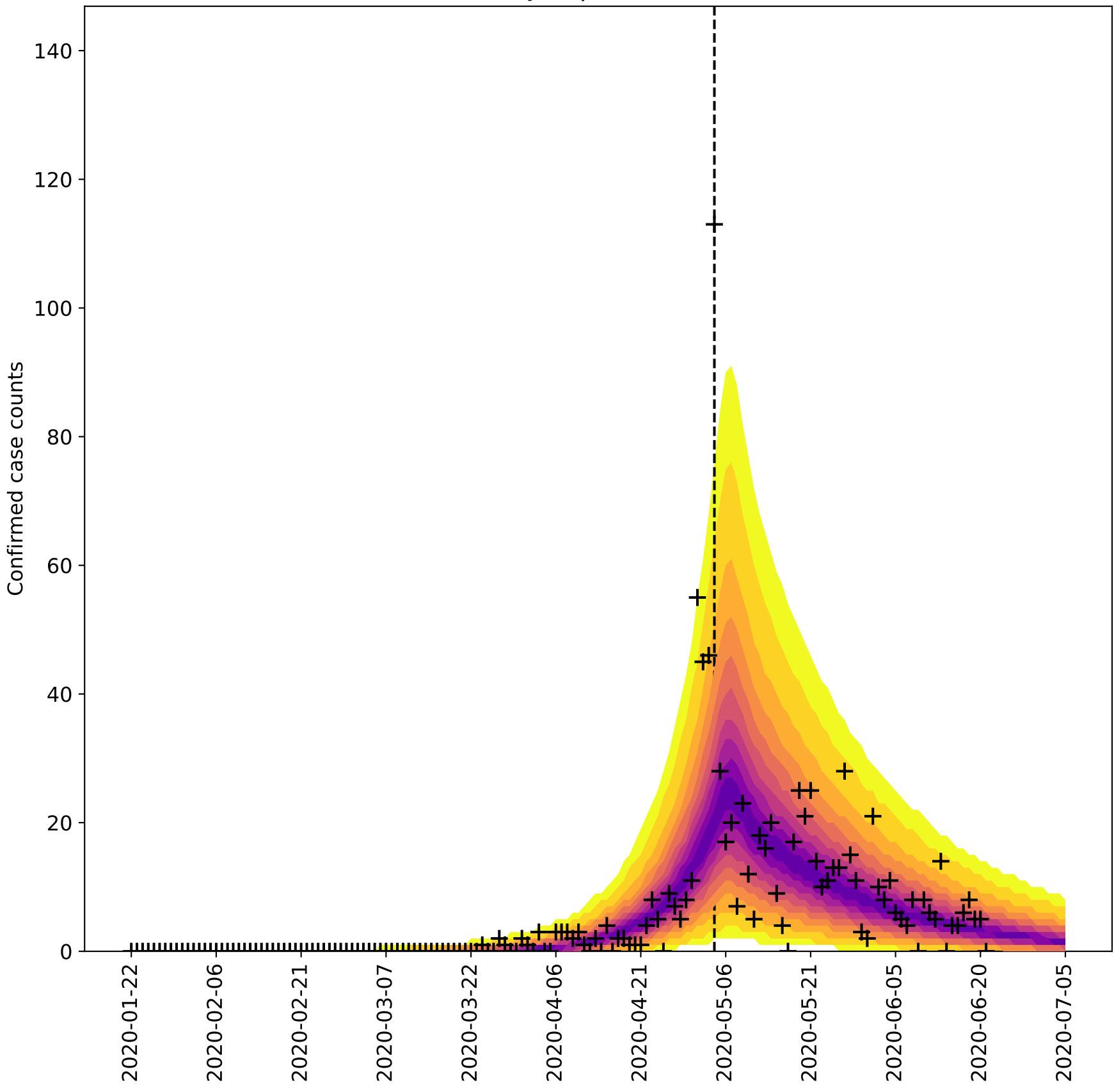
Farmington, NM



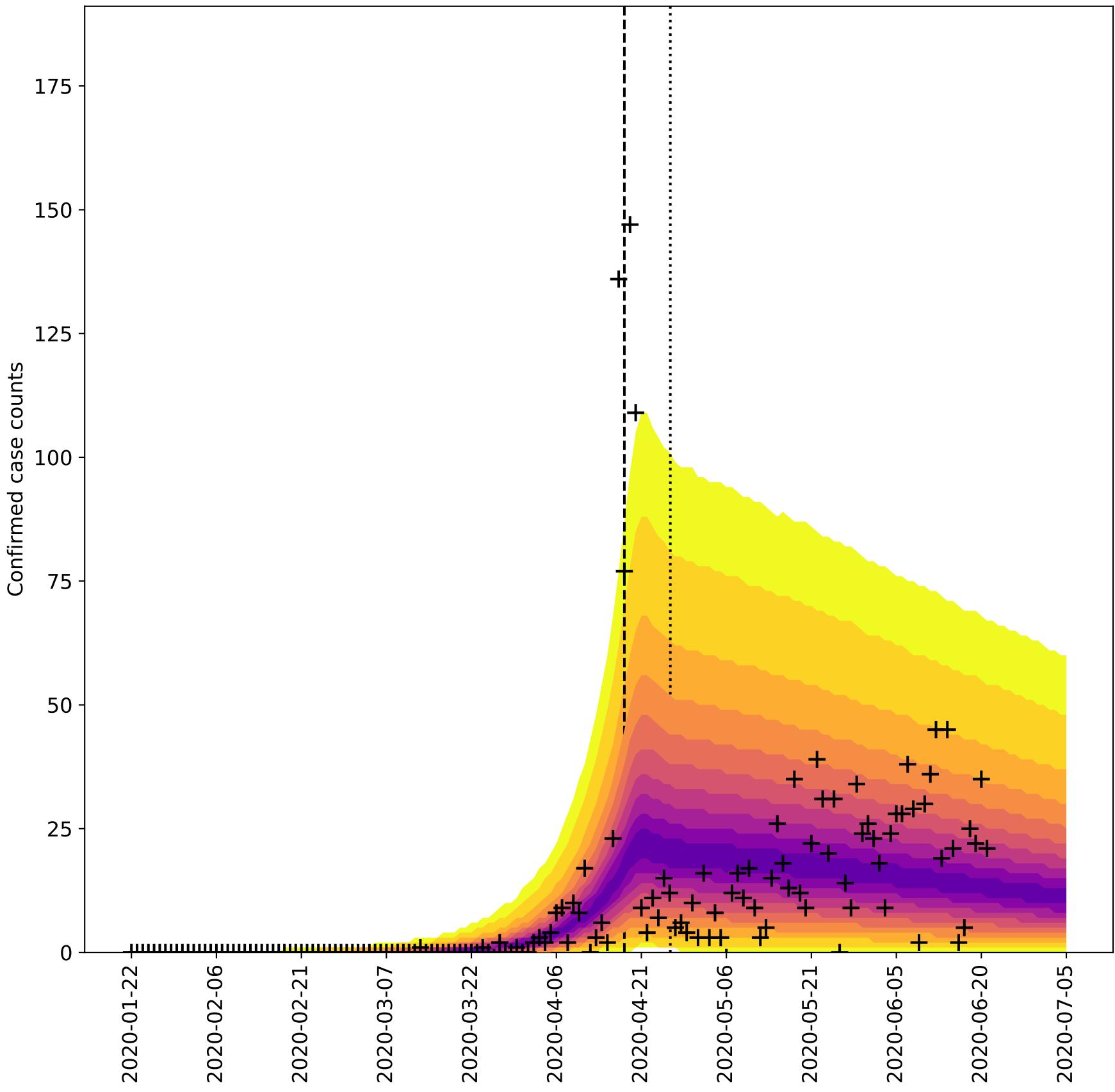
Owensboro, KY



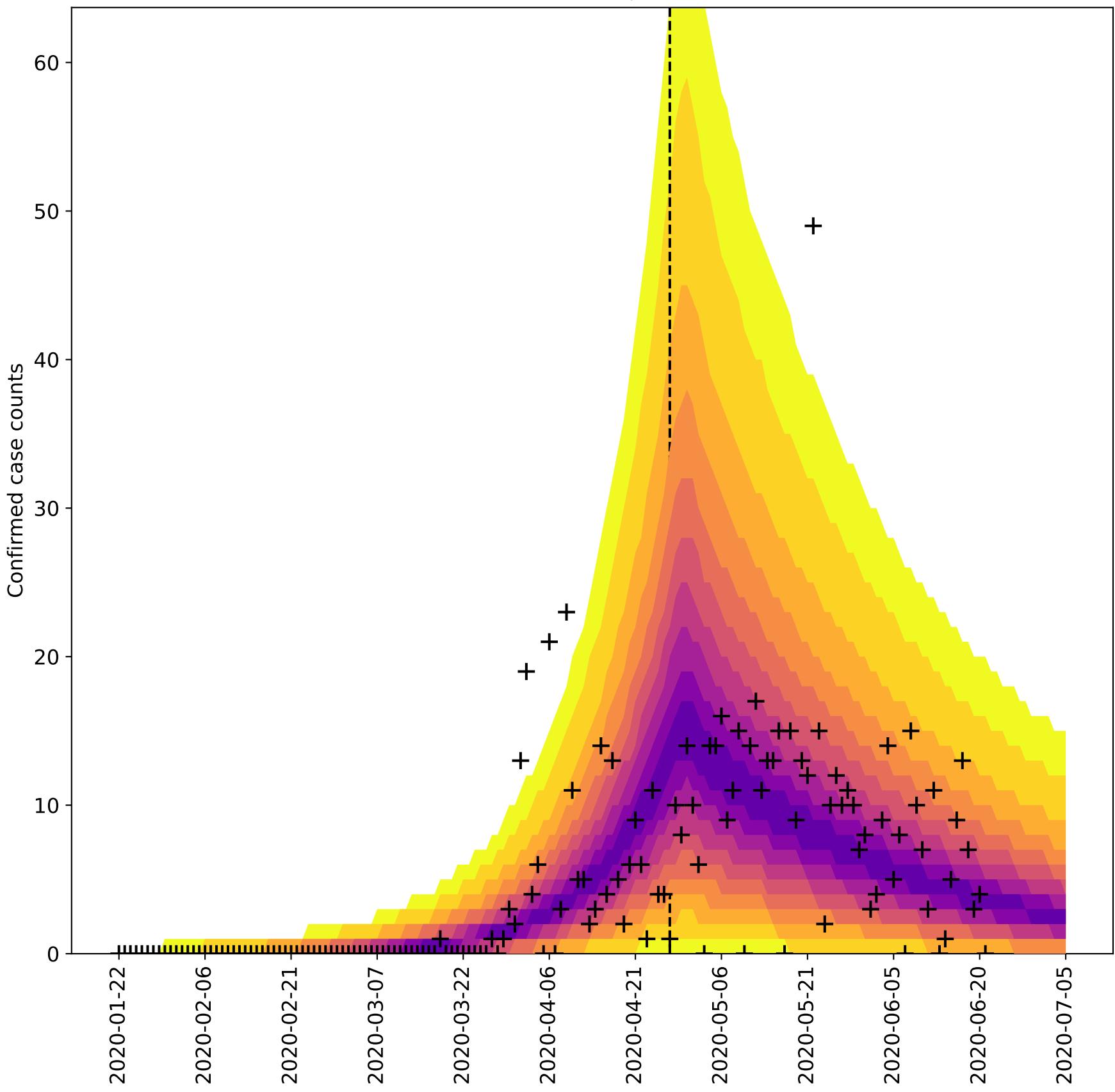
St. Joseph, MO-KS



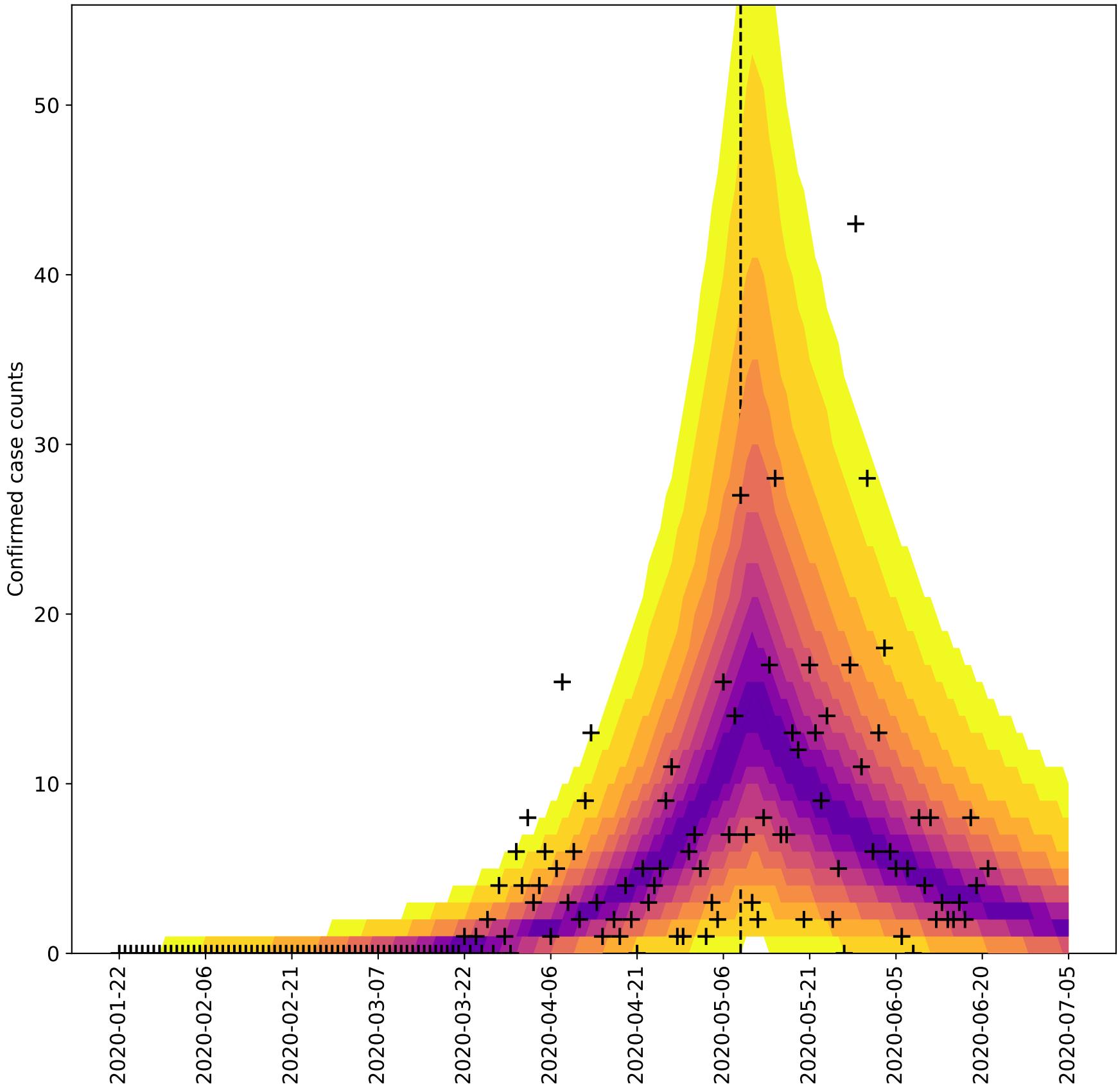
Goldsboro, NC



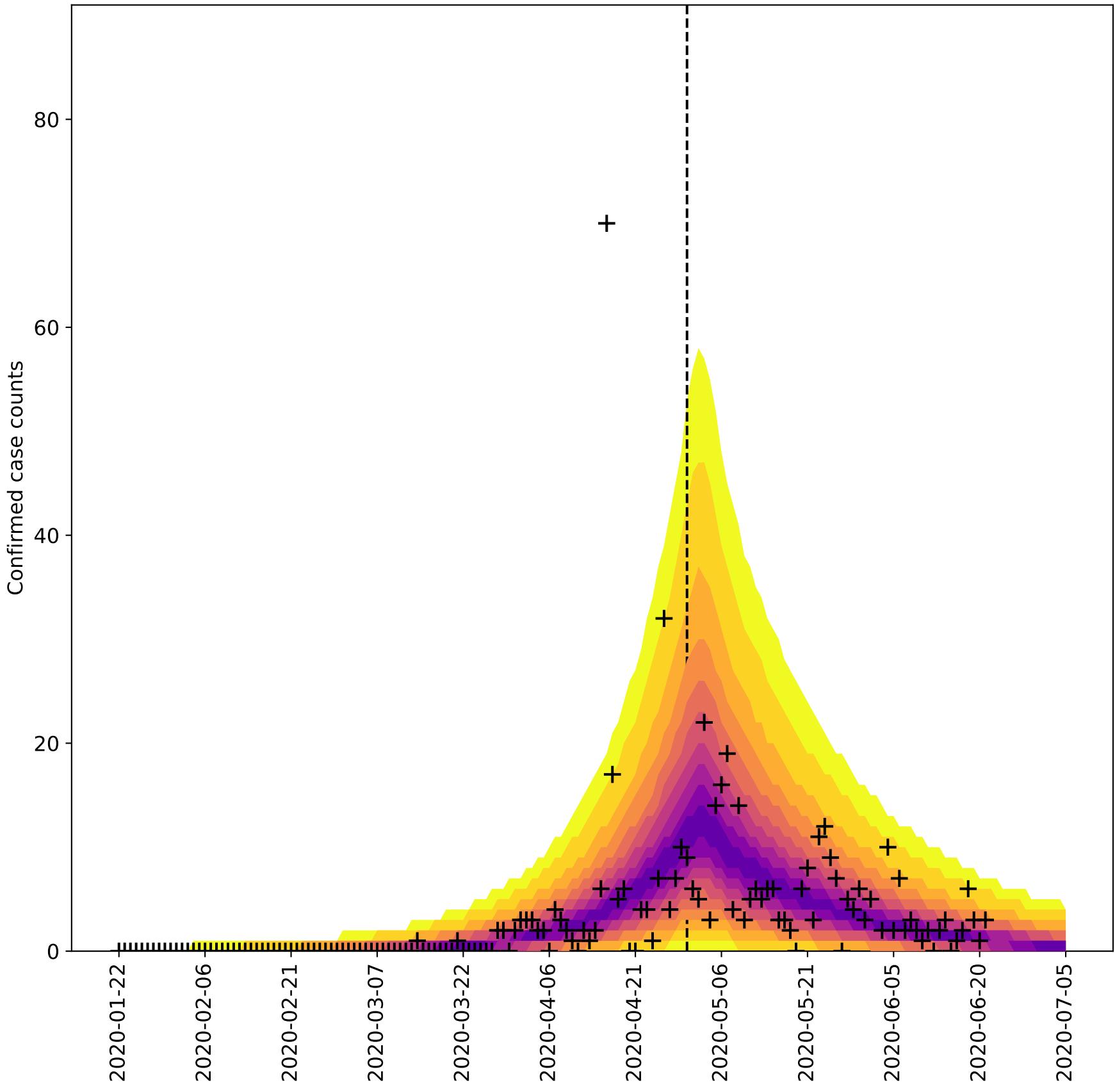
Twin Falls, ID



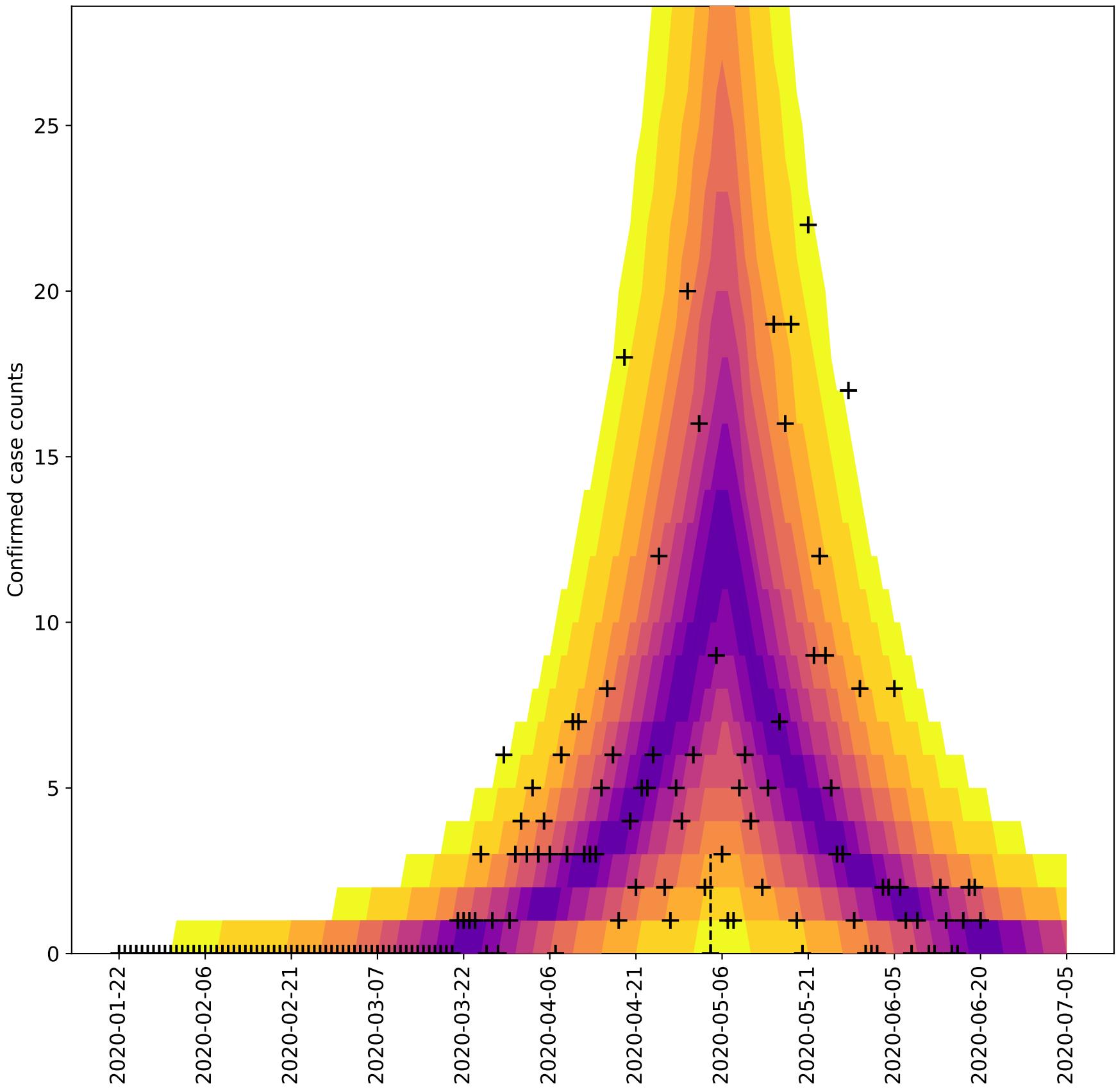
California-Lexington Park, MD



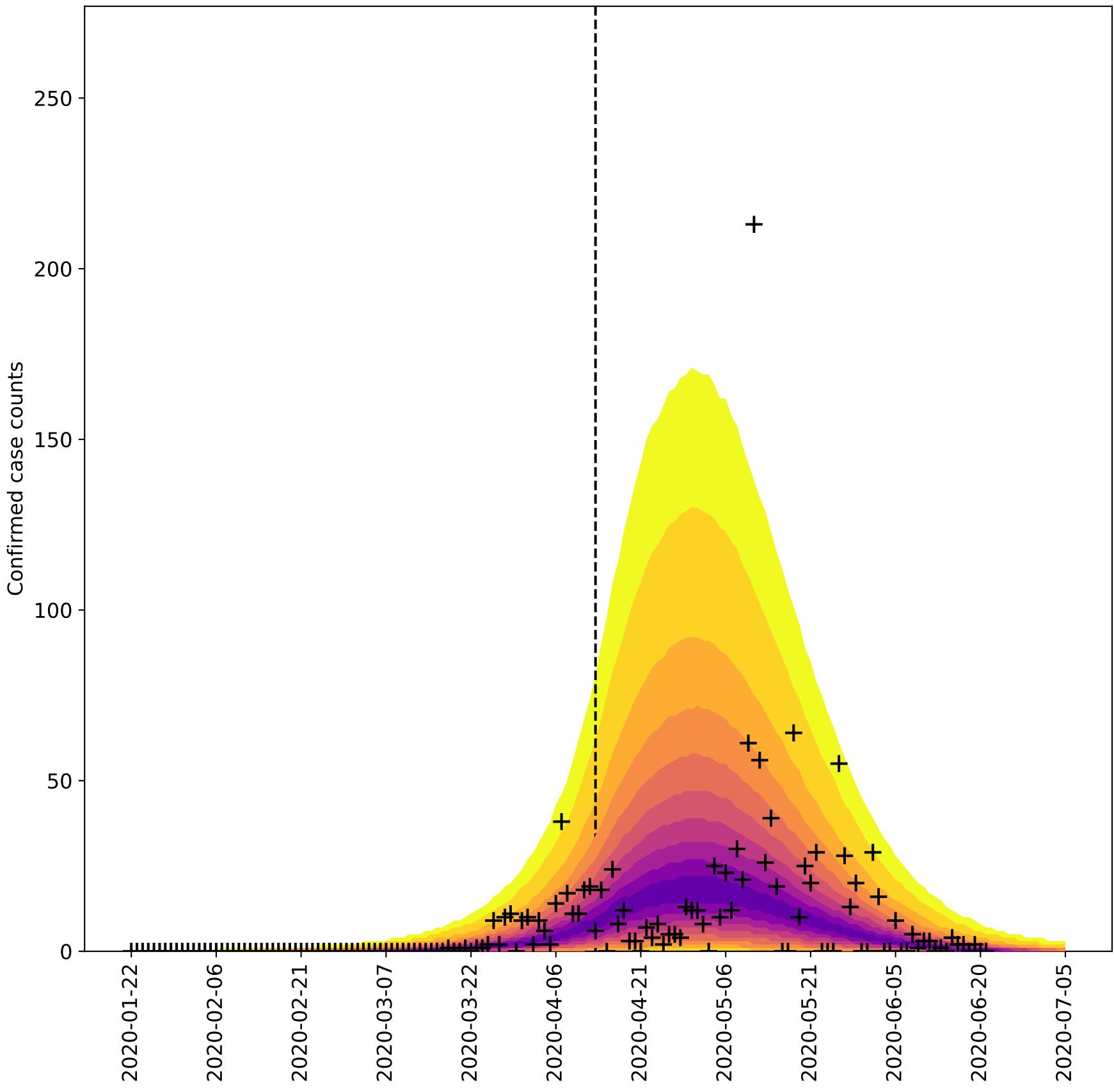
Michigan City-La Porte, IN



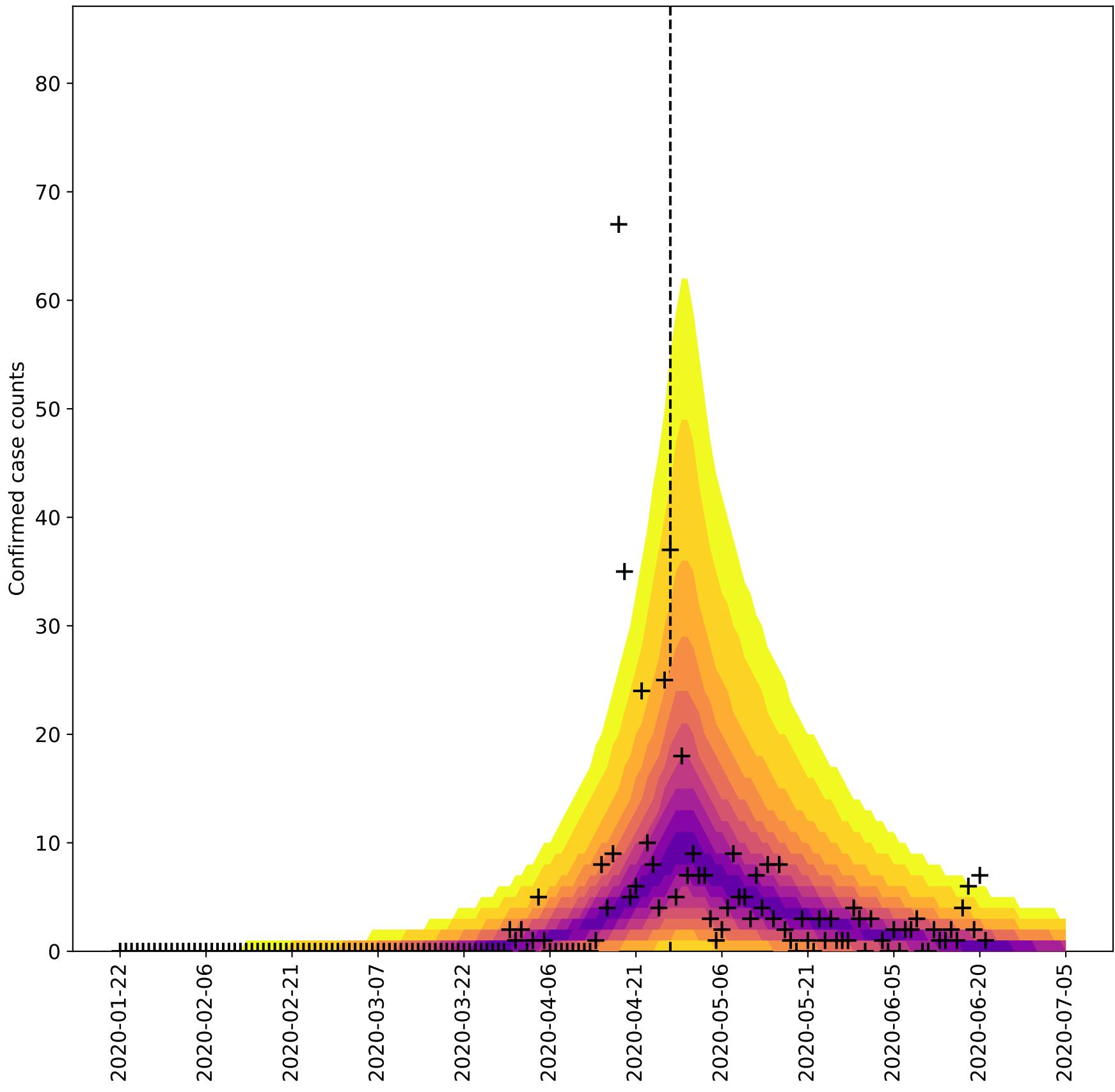
Muncie, IN



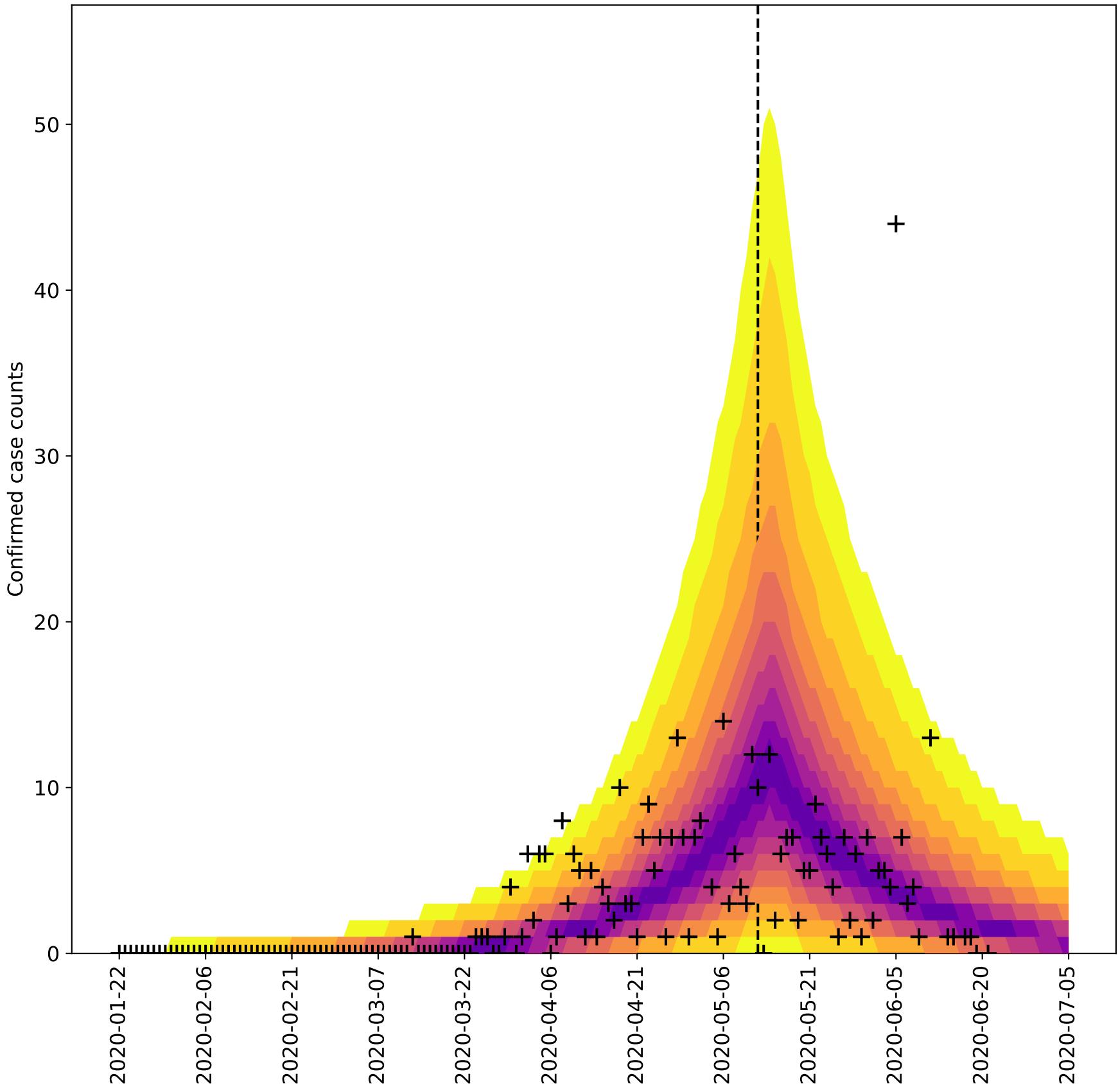
Kankakee, IL



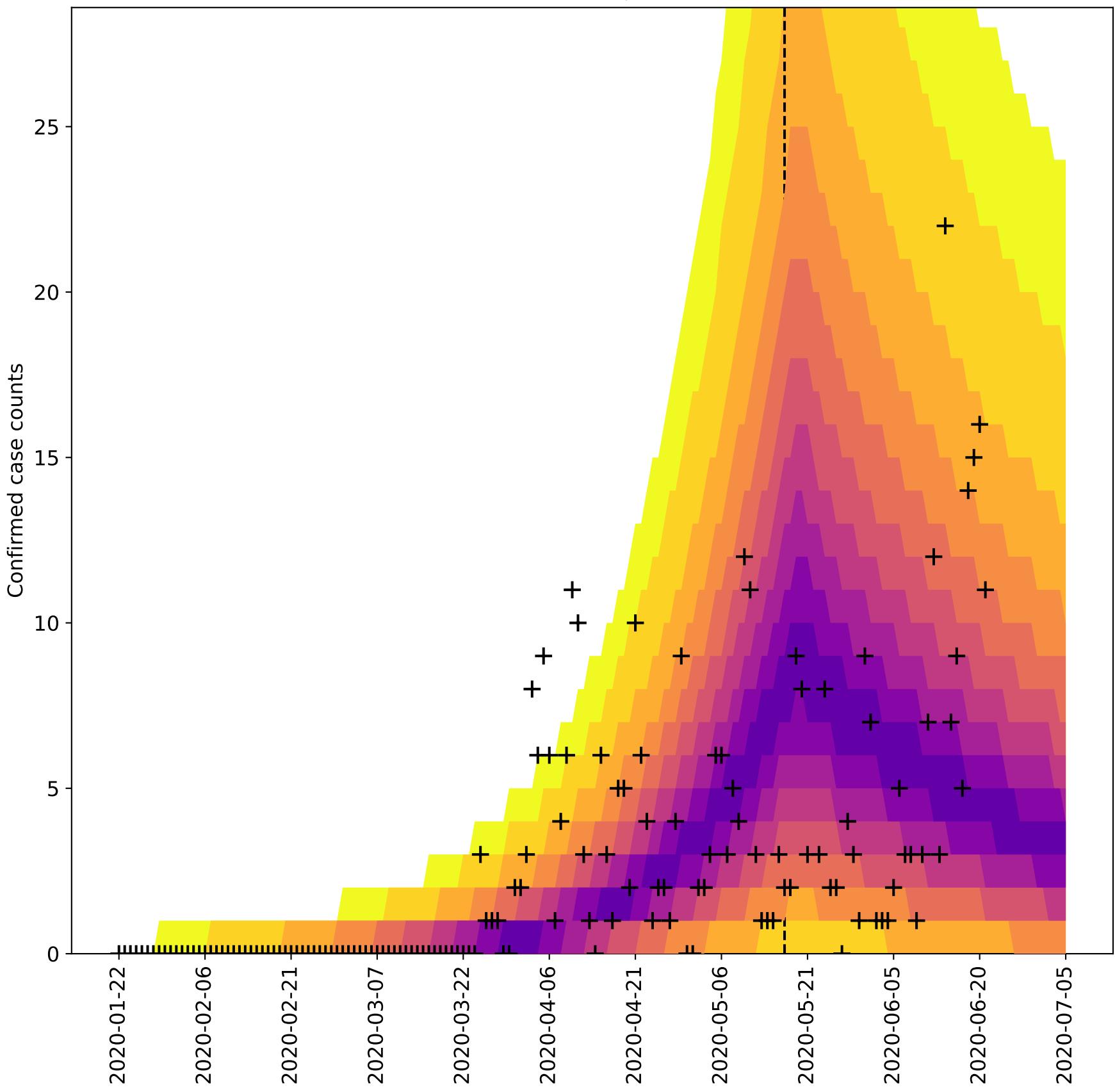
Grand Forks, ND-MN



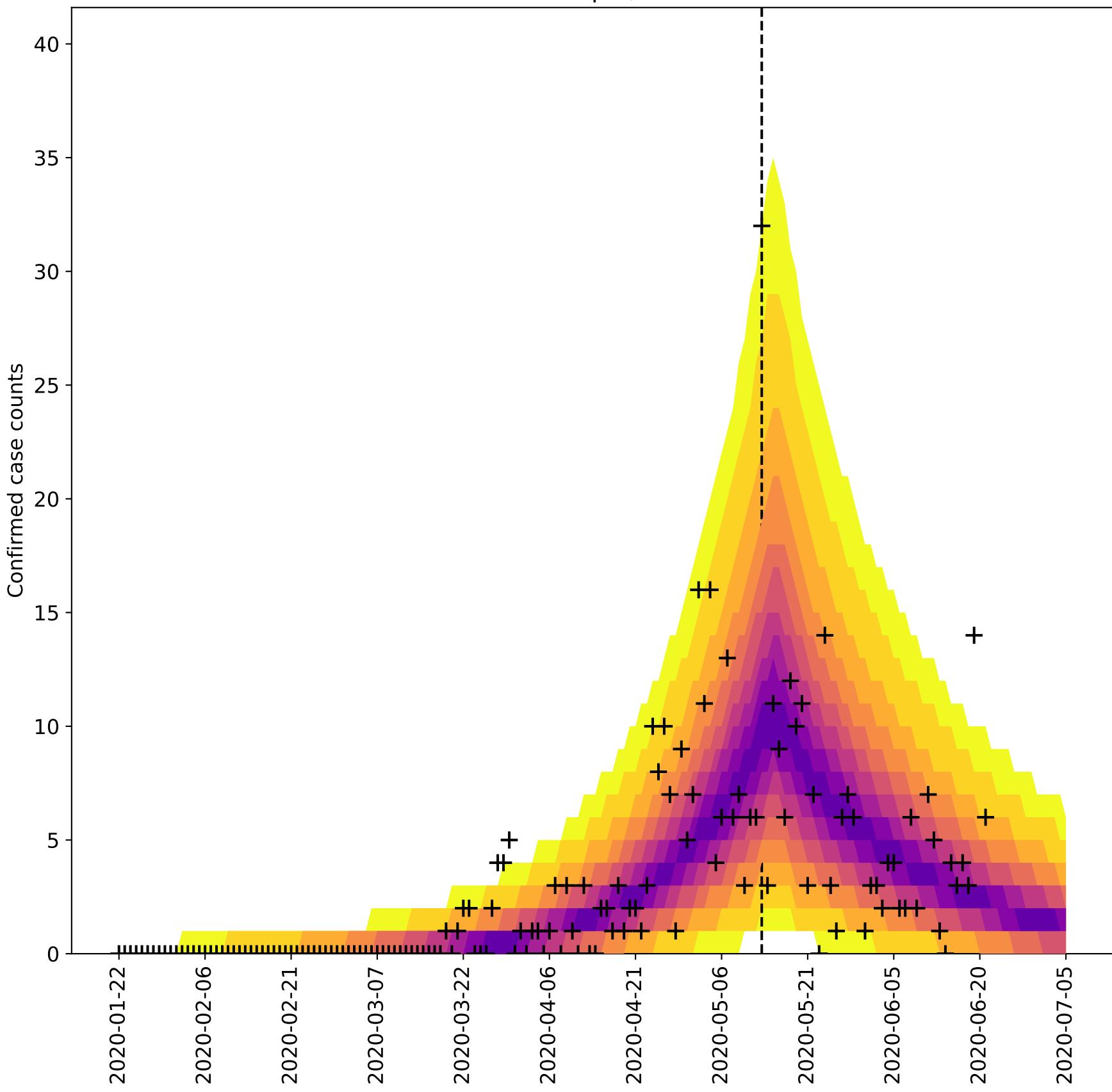
Bay City, MI



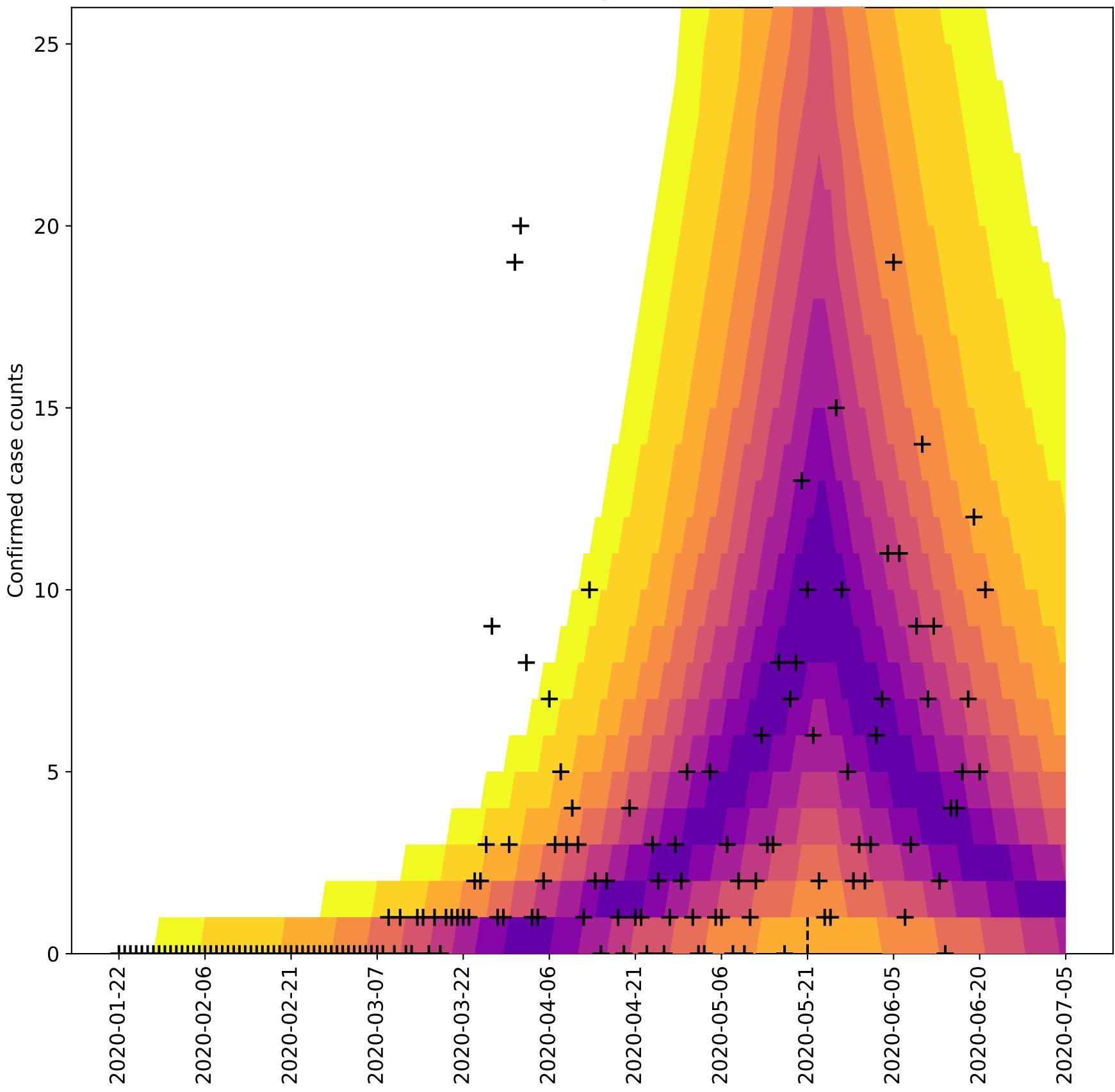
Gadsden, AL



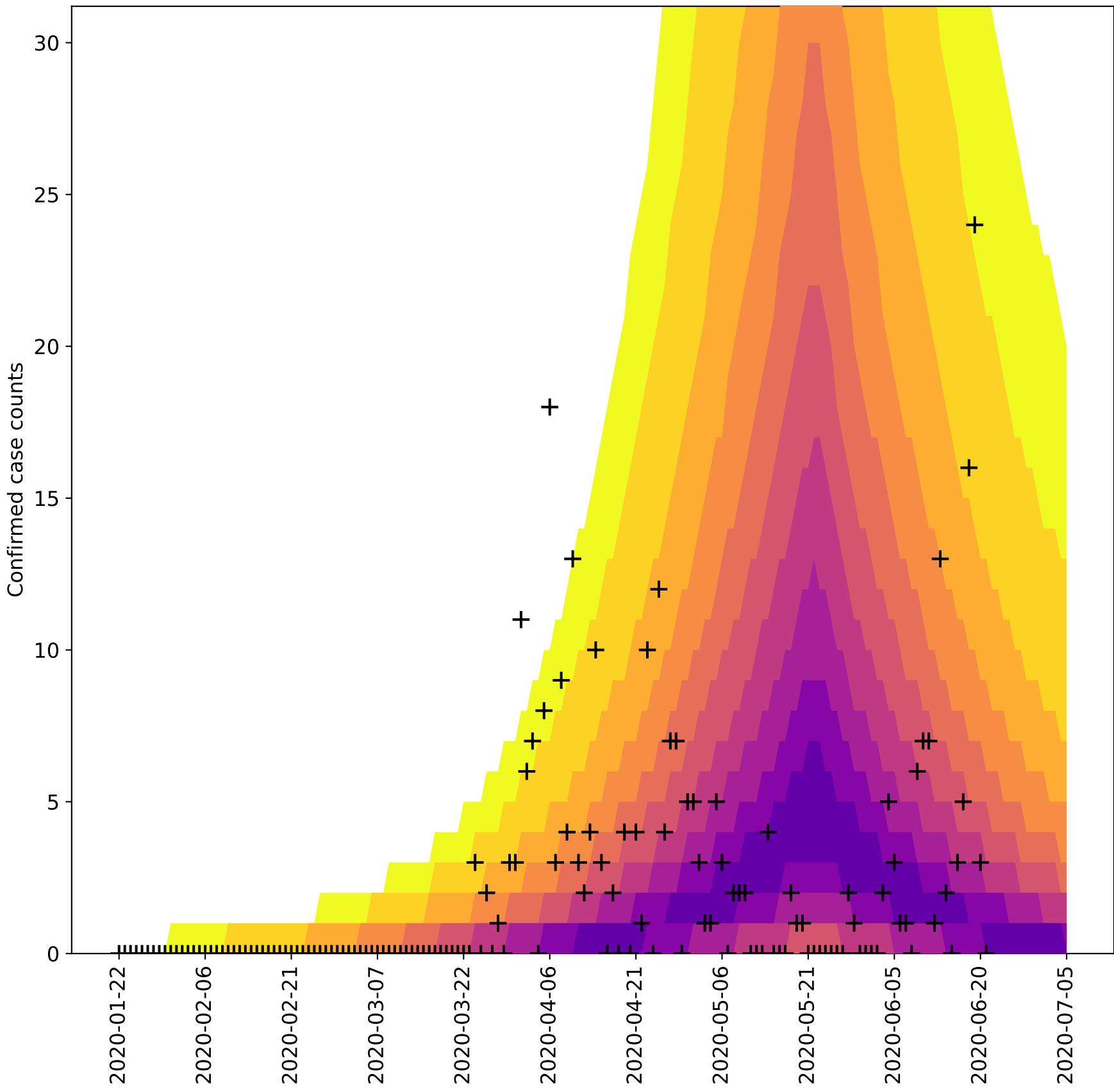
Dubuque, IA



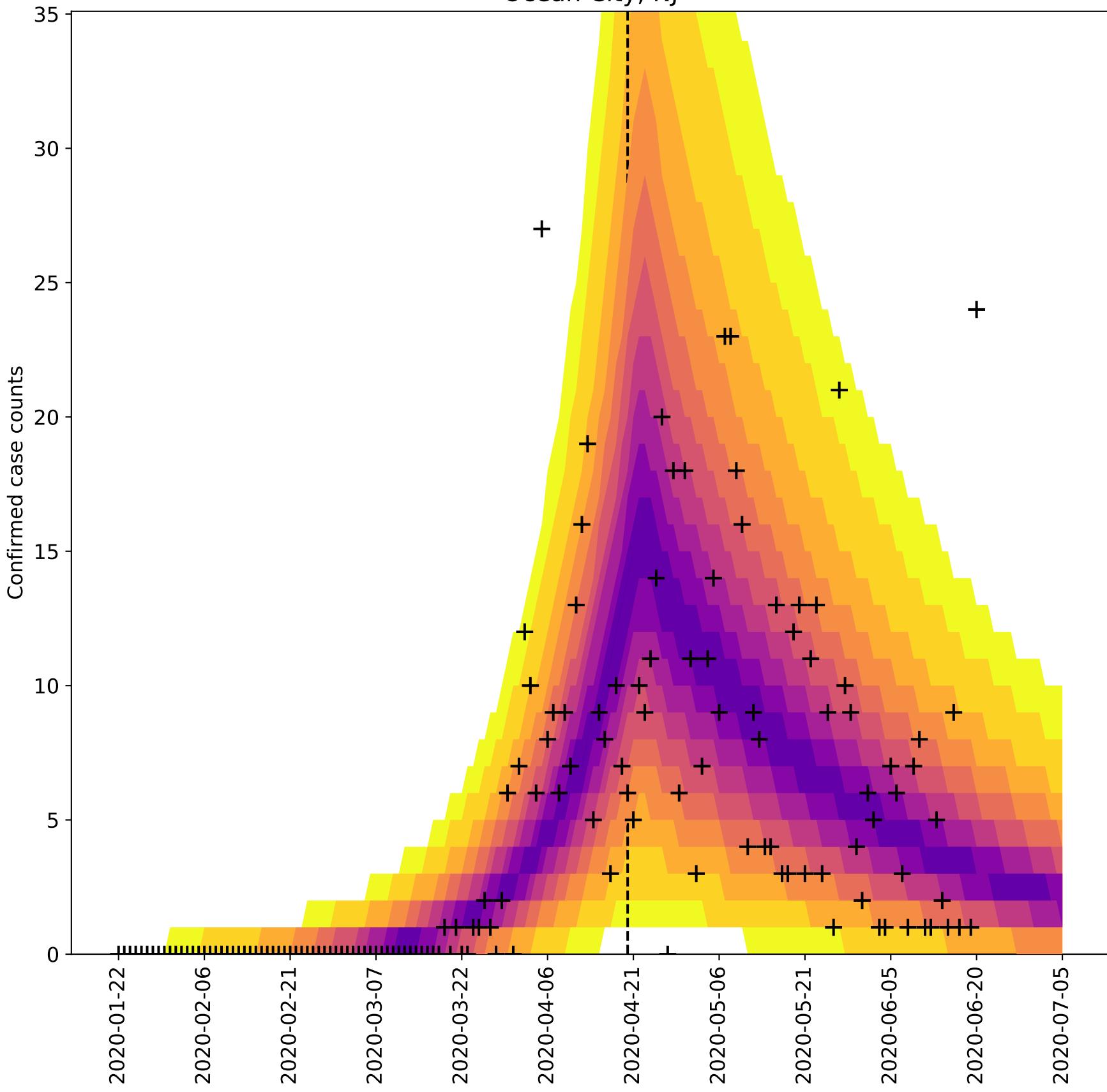
Rome, GA



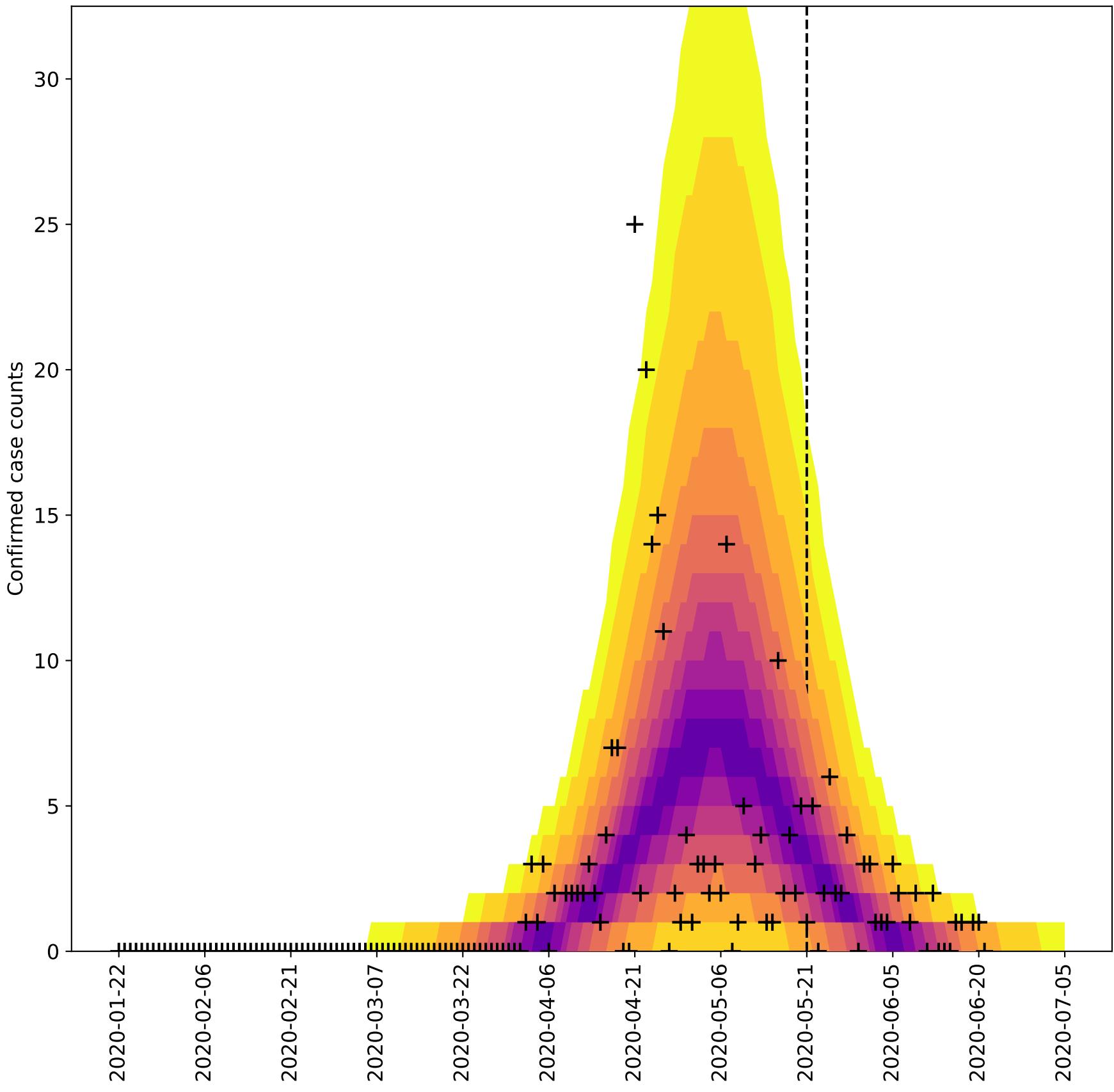
Victoria, TX



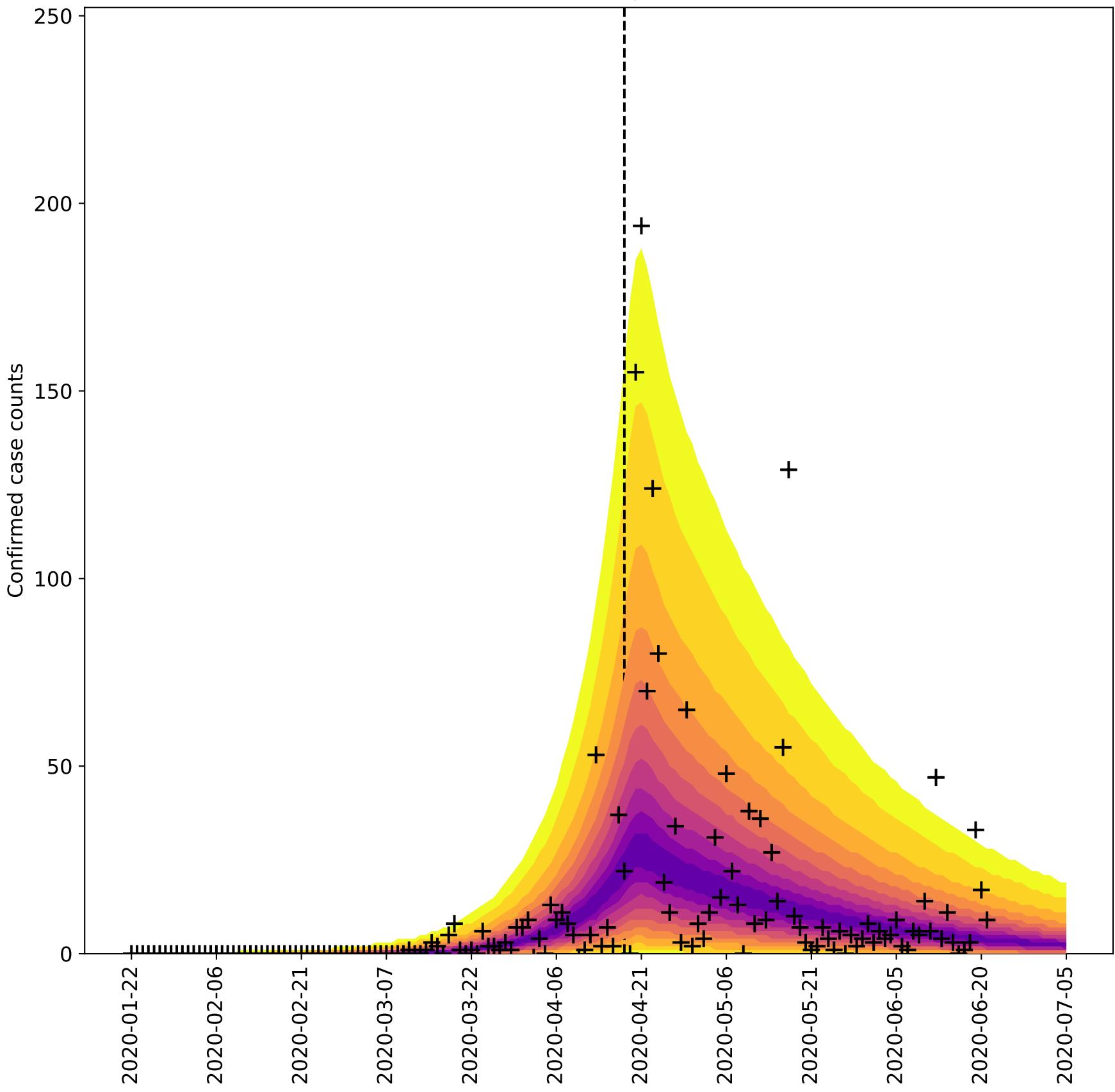
Ocean City, NJ



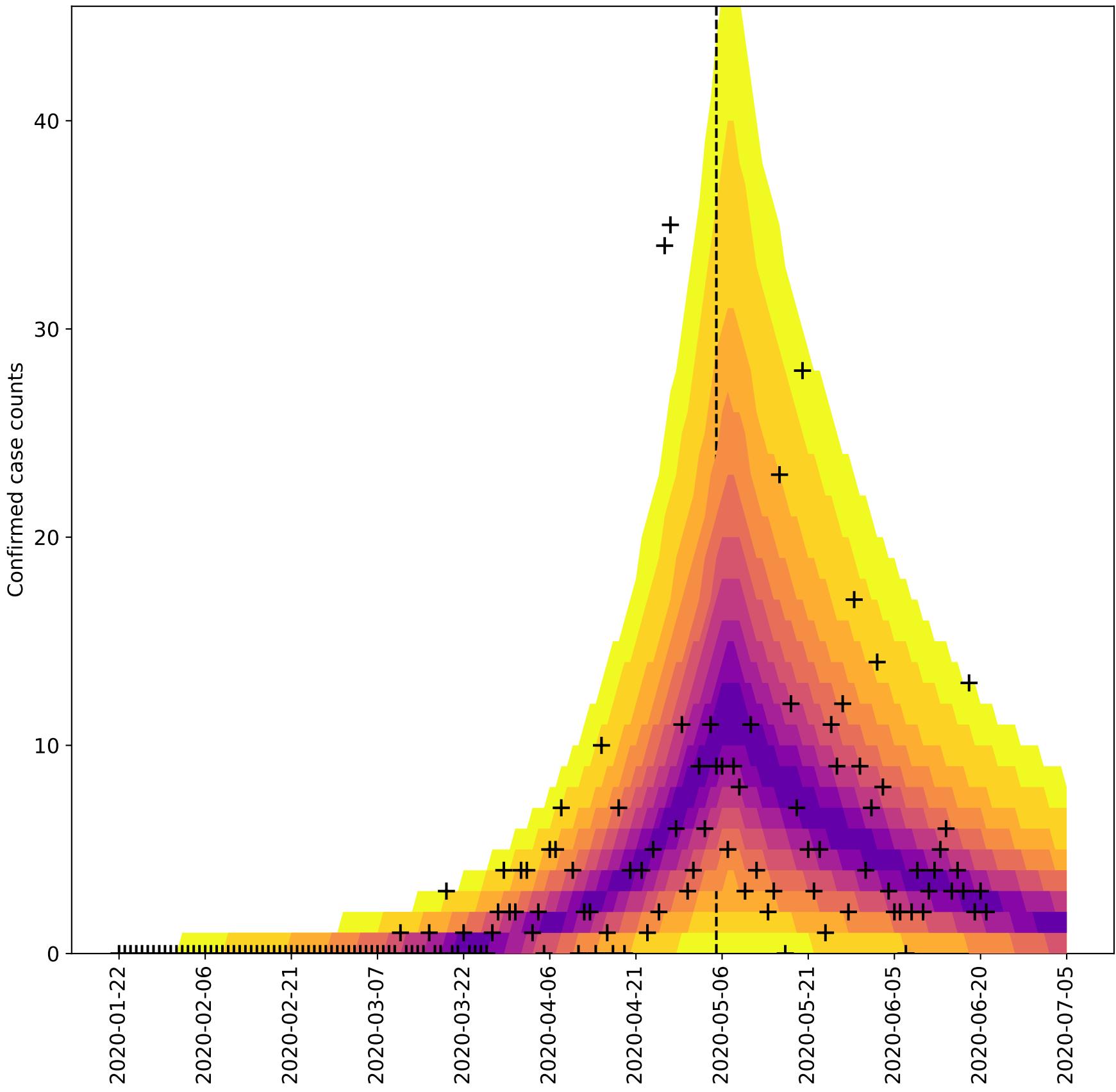
Cumberland, MD-WV



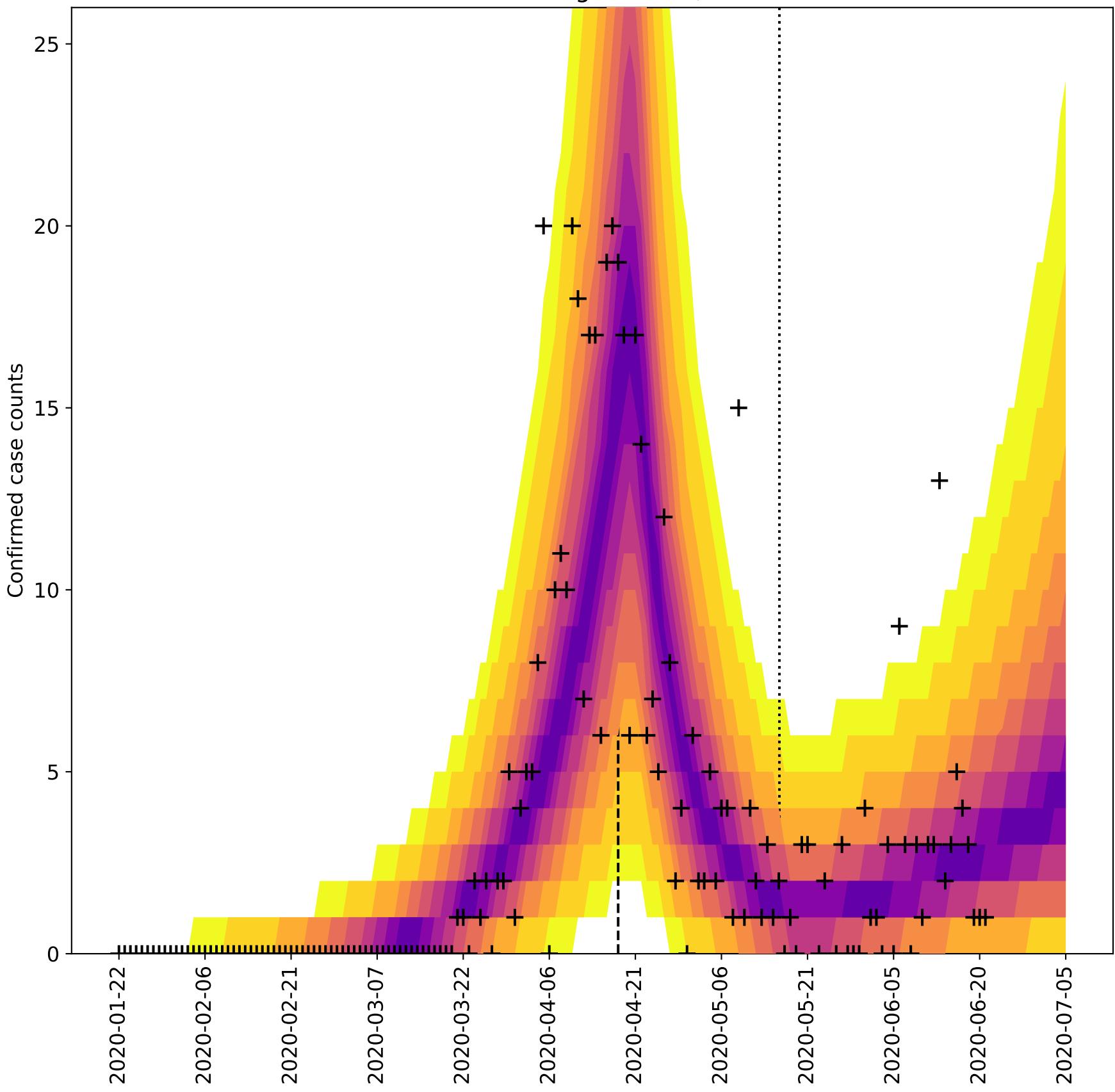
Pine Bluff, AR



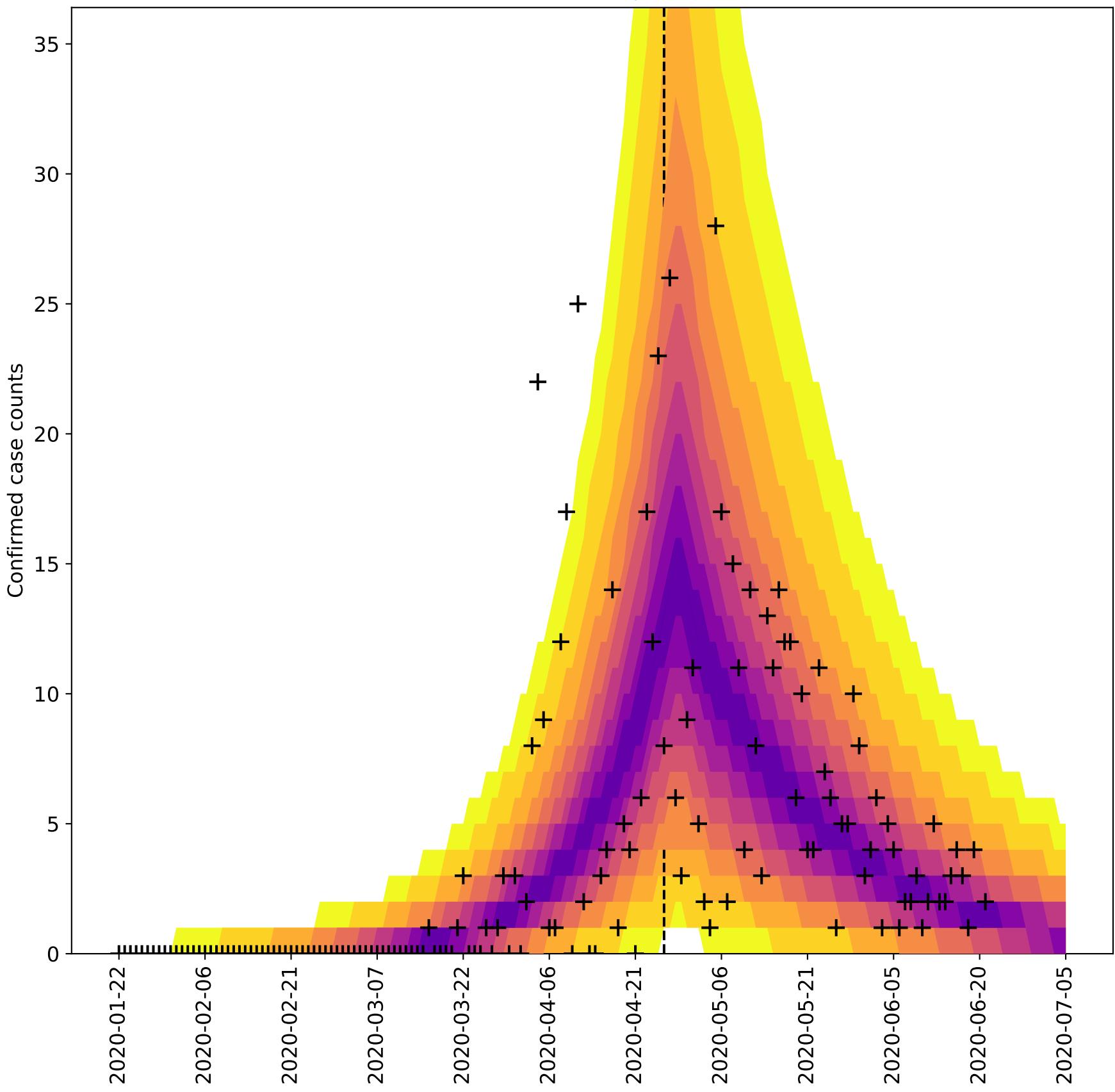
Kokomo, IN



Bloomsburg-Berwick, PA



Columbus, IN



Grand Island, NE

